MISSISSIPPI
STATE GEOLOGICAL SURVEY

WILLIAM CLIFFORD MORSE, Ph.D.
Director

BULLETIN 60

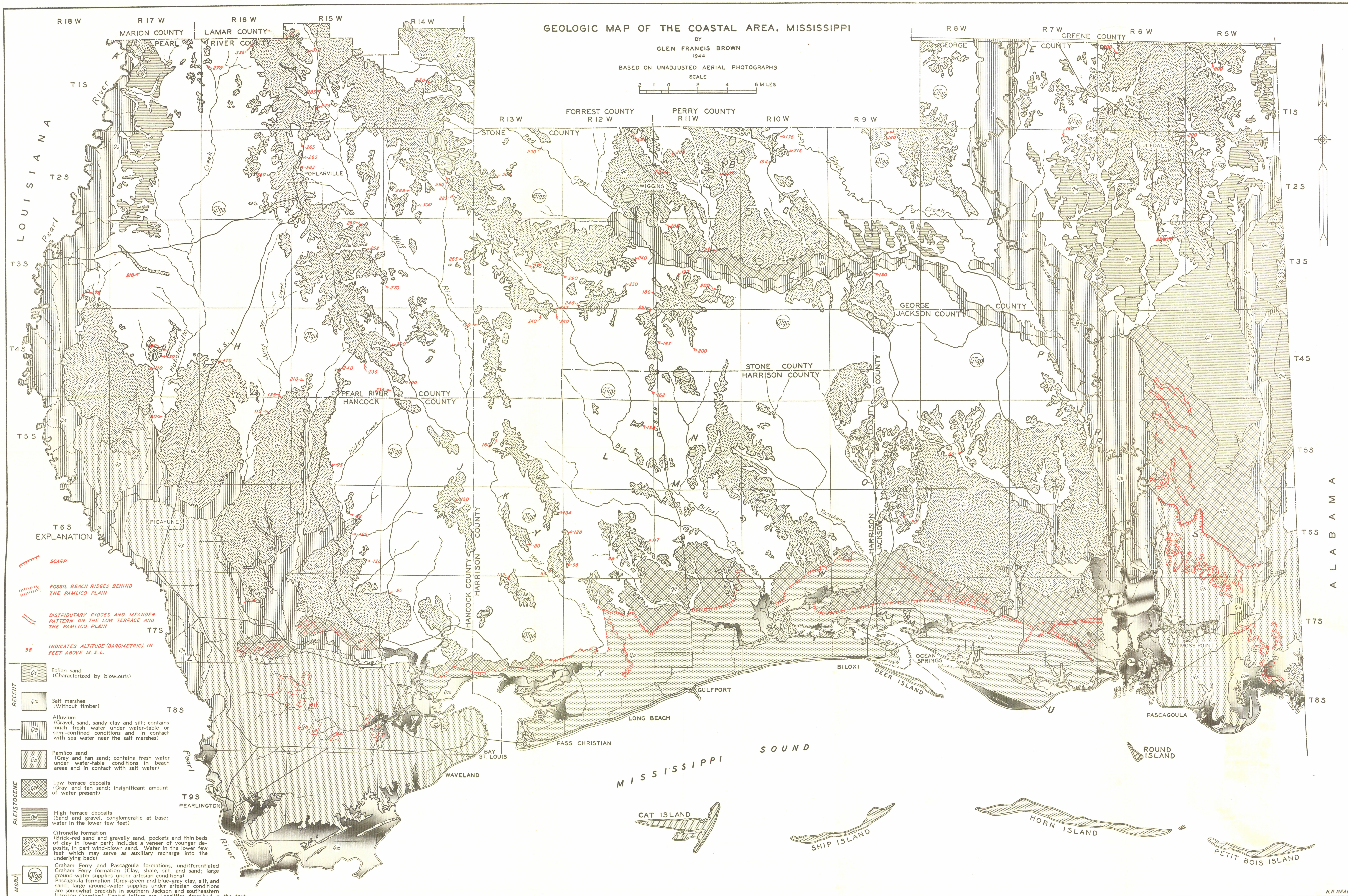
GEOLOGY AND GROUND-WATER RESOURCES of the COASTAL AREA IN MISSISSIPPI

by

GLEN FRANCIS BROWN, VELORA MEEK FOSTER, ROBERT WYNN ADAMS,
EDWIN WILLIAM REED, HAROLD DEMENT PADGETT, JR.

In cooperation with the
United States Geological Survey

UNIVERSITY, MISSISSIPPI
1944


GEOLOGIC MAP OF THE COASTAL AREA, MISSISSIPPI
BY
GLEN FRANCIS BROWN
1944
BASED ON UNADJUSTED AERIAL PHOTOGRAPHS
SCALE
2 1 0 2 4 6 MILES
EXPLANATION
SCARP
FOSSIL BEACH RIDGES BEHIND THE PAMLICO PLAIN
DISTRIBUTARY RIDGES AND MEANDER PATTERN ON THE LOW TERRACE AND THE PAMLICO PLAIN
58 INDICATES ALTITUDE (BAROMETRIC) IN FEET ABOVE M. S. L.
RECENT
Qe Eolian sand (Characterized by blow-outs)
Qsm Salt marshes (Without timber)
Qa Alluvium (Gravel, sand, sandy clay and silt; contains much fresh water under water-table or semi-confined conditions and in contact with sea water near the salt marshes)
PLEISTOCENE
Qp Pamlico sand (Gray and tan sand; contains fresh water under water-table conditions in beach areas and in contact with salt water)
Qlt Low terrace deposits (Gray and tan sand; insignificant amount of water present)
Qht High terrace deposits (Sand and gravel, conglomeratic at base; water in the lower few feet)
Qc Citronelle formation (Brick-red sand and gravelly sand, pockets and thin beds of clay in lower part; includes a veneer of younger deposits, in part wind-blown sand. Water in the lower few feet which may serve as auxiliary recharge into the underlying beds)
M&PLI
QTgp Graham Ferry and Pascagoula formations, undifferentiated Graham Ferry formation (Clay, shale, silt, and sand; large ground-water supplies under artesian conditions) Pascagoula formation (Gray-green and blue-gray clay, silt, and sand; large ground-water supplies under artesian conditions are somewhat brackish in southern Jackson and southeastern Harrison Counties) Capital letters are Localities described in the text.
R 18 W
R 17 W
R 16 W
R 15 W
R 14 W
R 13 W
R 12 W
R 11 W
R 10 W
R 9 W
R 8 W
R 7 W
R 6 W
R 5 W
T 1 S
T 2 S
T 3 S
T 4 S
T 5 S
T 6 S
T 7 S
T 8 S
T 9 S
MARION COUNTY
LAMAR COUNTY
PEARL RIVER COUNTY
FORREST COUNTY
PERRY COUNTY
GREENE COUNTY
GEORGE COUNTY
STONE COUNTY
HARRISON COUNTY
HANCOCK COUNTY
JACKSON COUNTY
LOUISIANA
ALABAMA
POPLARVILLE
WIGGINS
LUCEDALE
PICAYUNE
PEARLINGTON
WAVELAND
BAY ST. LOUIS
PASS CHRISTIAN
LONG BEACH
GULFPORT
BILOXI
OCEAN SPRINGS
DEER ISLAND
MOSS POINT
PASCAGOULA
ROUND ISLAND
MISSISSIPPI SOUND
CAT ISLAND
SHIP ISLAND
HORN ISLAND
PETIT BOIS ISLAND
Pearl River
Red Creek
Black Creek
Wolf River
Biloxi River
Tuxachanie Creek
Hobolochitto Creek
Hickory Creek
Jourdan River
Pascagoula River
H.P. NEAL

MISSISSIPPI
STATE GEOLOGICAL SURVEY

WILLIAM CLIFFORD MORSE, Ph.D.
Director

BULLETIN 60

GEOLOGY AND GROUND-WATER RESOURCES of the COASTAL AREA IN MISSISSIPPI

by

GLEN FRANCIS BROWN, VELORA MEEK FOSTER, ROBERT WYNN ADAMS,
EDWIN WILLIAM REED, HAROLD DEMENT PADGETT, JR.

In cooperation with the
United States Geological Survey

UNIVERSITY, MISSISSIPPI
1944

MISSISSIPPI GEOLOGICAL SURVEY

COMMISSION

His Excellency, Thomas L. Bailey ..... Governor

Hon. Joseph Sloan Vandiver ..... State Superintendent of Education

Hon. Alfred Benjamin Butts ..... Chancellor, University of Mississippi

Hon. Duke Humphrey ..... President, Mississippi State College

Hon. William David McCain* ..... Director, Dept. of Archives and History

STAFF

William Clifford Morse, Ph.D ..... Director

Calvin S. Brown, D.Sc., Ph.D. ..... Archeologist

Franklin Earl Vestal, M. S. ..... Assistant Geologist

Thomas Edwin McCutcheon, B. S., Cer. Engr. ..... Ceramic Engineer

Laura Cameron Brown, B. A. ..... Secretary

Bernard Frank Mandlebaum, B. S. E. ..... Chemist

---

* On military leave.

LETTER OF TRANSMITTAL

Office of the Mississippi Geological Survey
University, Mississippi
April 16, 1945

To His Excellency,
Governor Thomas L. Bailey, Chairman, and
Members of the Geological Commission

Gentlemen:

Herewith is Bulletin 60, Geology and Ground-Water Resources of the Coastal Area in Mississippi—a report on a study begun by the late Velora Meek Foster and completed by Glen Francis Brown, Robert Wynn Adams, Edwin William Reed, and Harold Dement Padgett, Jr. In addition to the original typing of the report, Miss Barbara Tinsley spent a month checking all phases of the manuscript.

As the title indicates, it is a report on both the geology and ground-water resources of the Coastal Area, that was prepared at the request of the citizens and of the War Department and submitted for publication in December 1944. As such it is an important contribution to an understanding of the vital salt-water encroachments and other problems of the Gulf Coast. At one and the same time it is almost equally important to the oil and gas research of the State.

Very sincerely and respectfully,

William Clifford Morse,
State Geologist and Director

CONTENTS

ILLUSTRATIONS

FIGURES

PLATES

TABLES

GEOLOGY AND GROUND-WATER RESOURCES OF THE COASTAL AREA IN MISSISSIPPI

GLEN FRANCIS BROWN, VELORA MEEK FOSTER, ROBERT WYNN ADAMS
EDWIN WILLIAM REED, HAROLD DEMENT PADGETT, JR.

INTRODUCTION

LOCATION OF THE AREA

The Gulf coastal area in Mississippi includes six counties of which three, Hancock, Harrison, and Jackson, face the Mississippi

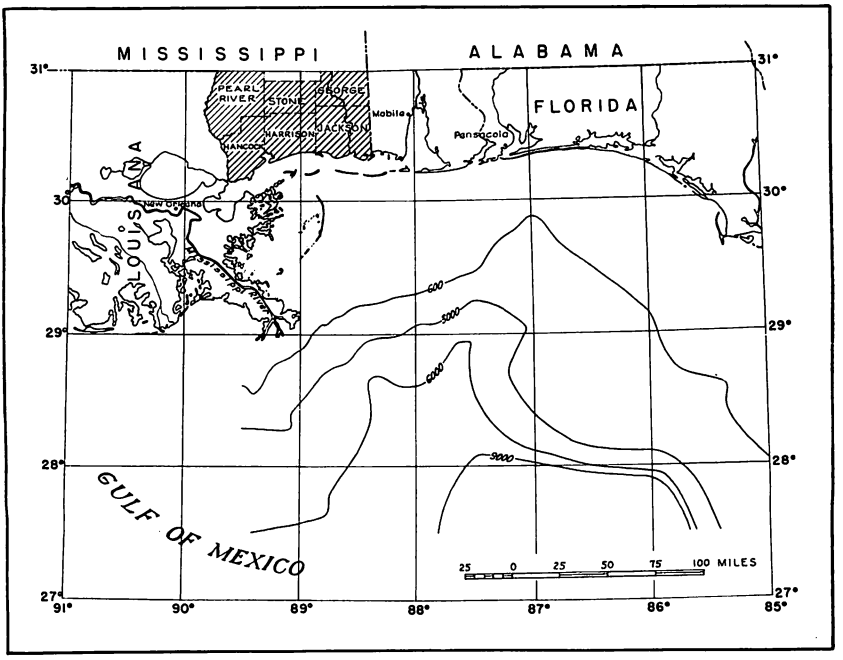


Figure 1.—Index map showing location of the area and the depth in feet of the Gulf.

Sound. Pearl River, Stone, and George Counties on the north complete the "panhandle," an area of 3,571 square miles. The area is bounded on the west by Pearl River and by Louisiana and on the east by Alabama (Figure 1); it includes nearly all the inhabited coastal section between Mobile, Alabama, and New Orleans, Louisiana.

TABLE 1

PRECIPITATION AT BILOXI, HARRISON COUNTY
MONTHLY, ANNUAL, AND AVERAGE AMOUNTS IN INCHES

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1887	.....	5.34	3.03	0.95	2.95	8.22	4 50	6.22	11.47	4.91	4.65	10.13	.....
1888	3.03	8.90	7.25	1.78	9.58	6.11	2.74	19.08	4.64	4.85	2,22	.....	.....
1893	.....	.....	.....	.....	2.79	9.18	4,17	6.15	9.21	8.00	5.84	1.54	.....
1894	1.59	9.95	6.00	1.95	1.87	1.13	7.28	9.17	5.09	0.40	0.35	2.85	47.63
1895	5.89	4.67	7,13	5.45	6.25	17.10	3.57	7.75	2.10	4.70	0.45	3.60	68.66
1896	2.60	4.60	3.20*	1.15	2.50	7.40	3.87	3.70	3.63	6.80	2.98	3.08	45.51**
1897	4.88	8.02	12.64	4.69	0.67	3.15	2.94	6.08	4.09	1.83	1.67	5.74	56.40
1898	4.18	5.03	1.69	3.50	1.23	4.89	7.00	12.53	21.76	2.12	7,19	5.78	76.90
1899	4.22	5.16	11.67	0.62	T	9.20	5.99	4.04	0.43	0.80	3.28	3.50	48.91
1900	6.32	9.87	7.95	10.22	6.77	16.93	7.31	3.45	7.15	3.38	1.92	8.33	89.60
1901	2.49	3.55	4.37	9.05	1.42	4.25	11.48	9.47	4.17	0.34	2.46	6.84	59.89
1902	1.17	6.48	5.00	2.23	2.23	1.16	2.19	4.80	4.85	3.61	3.58	5.71	43.01
1903	4.83	7.82	8.73	2.28	1.40	2.55	8.97	4.68	1.05	2.25	4.02	4.14	52.72
1904	2.64	3.17	2.39	1.23	2.16	3.23	9.99	9.25	1.15	1.12	2.68	2.98	41.99
1905	4.14	7.05	7.41	3.69	6.88	2.06	5.14	6.04	7.05	6.01	3.57	8.85	67.89
1906	2.88	3.77	10.08	1.09	2.20	7.91	4.21	2.96	11.84	1.42	0.83	2.13	51.32
1907	1.86	2.24	1.58	13.75	9.07	1.98	5.56	3.71	11.18	0.44	4.32	9.61	65.30
1908	5.94	4.50	6.24	6.20	6.05	5.13	19.16	4.11	7.48	0.75	0.13	3.04	68.73
1909	2.78	2.99	3.90	6.03	11.15	13.09	6.21	11.65	5.72	1.40	2.20	5.32	72.44
1910	3.09	8.49	1.50	0.75	2.00	4.29	8.76	6.45	4.47	6.04	1.15	3.37	50.36
1911	1.50	2.64	5.52	11.29	3.40	6.59	5.02	5.02	3.42	4.37	3.95	12.25	64.97
1912	4.38	5.32	9.19	18.29	4.48	2.55	7.66	7.96	1.80	6.73	3.24	6.47	78.07
1913	6.21	1.97	12.78	4.86	4.22	1.01	8.34	4.29	10.53	2.20	2.29	2.44	61.14
1914	1.12	7.08	5.08	3.13	0.11	1.44	7.63	3.82	7.36	1.95	5.09	3.74	47.55
1915	6.33	5.22	2.98	0.04	3.95	6.51	6.01	3.97	6.71	6.46	2.90	3.51	54.59
1916	5.54	2.78	2.43	5.07	7.74	5.53	14.01	10.45	3.27	2.57	2.30	6.81	68.50
1917	3.46	2.53	4.97	2.54	0.72	1.64	10.54	7.53	5.85	2.78	0.54	2.38	45.48
1918	4.02	2.94	1.59	10.25	1.73	2.46	2.54	6.48	2.54	15.73	5.71	7.50	63.49
1919	6.31	5.88	5.70	6.13	12.36	2.73	4.07	7.89	2.08	4.30	5.11	3.71	66.27
1920	6.90	6.63	3.31	9.06	.....	.....	.....	7.12	6.66	2.69	1.38	4.50	.....
1921	1.99	1.56	3.20	4.77	2.06	1.35	8.53	4.02	4.44	1.61	3.97	5.10	42.60
1922	7.08*	4.11	8.15	8.03*	8.25	3.16	8.69	6.23	5.33	1.36	2.91	5.45	68.75**
1923	3.74	3.42*	6.42	3.62	12.59	8.14	6.64	11.53	2.91	7.29	5.78	4.23	76.31**
1924	6.19	6.76	2.31	5.94	3.95	4.99	2.29	1.69	2.52	0.87	0.15	6.69	44.35
1925	7.01	1.92	0.18	1.29	9.47	5.20*	11.66	3.96	3.84	9.82*	4.59	2.98	61.92**
1926	8.06	6.23	9.15	6.73	4.08	2.52	5.44	11.85	2.18	3.31	3.37	2.22	65.14
1927	0.18	9.32	8.93	5.02	2.14	9.69	6.15	2.00	1.85	1.77	3.24	5.62*	55.91**
1928	1.22	8.75	6.33	6.34	7.34	4.60	9.76	8.85	7.40	1.63	2.07	6.27	70.56
1929	7.79	8.30	9.21	2.49	8.64	5.48	5.55	2.98	19.16*	3.38	4.18	4.36	81.52**
1930	4.53	2.07	3.71	0.83	2.35	4.31	5.02	7.74	8.31	5.04	7.27	2.67	53.85
1931	4.93	3.14	6.83	2.72	3.10	2.92	8.93	10.38	3.74	4.20*	1.39	10.08	62.36**
1932	3.29	1.96	2.20	1.75	13.74	5.66	2.09	5.71	5.98	7.65	3.04	3.40	56.47
1933	2.86	6.29	4.42	10.77	3.60	2.25	5.63	1.87	0.59	4.02	1.93	3.56	47.79
1934	4.41	5.74	4.34	1.39	3.57	2.52	5.30	4.84	1.02	3.33	4.73	2.28	43.47
1935	0.43	2.55	5.82	6.26	7.40	1.44	5.36	5.82	2.96	0.07	2.00	5.39	45.50
1936	11.22	4.52	0.70	4.08	8.70	2.53	5.54	2.93	7.91	1.67	3.10	3.72	56.62
1937	1.79	1.16	7.19	4.47	2.27	6.13	3.21	6.07	3.84	11.36	0.88	3.21	51.58
1938	2.98	1.43	0.61	1.76	3.15	6.94	6.29	5.49	0.11	1.52	2.08	2.28	34.64
1939	1.34	3.96	1.48	1.77	7.38	3.33	13.25	7.94	4.12	0.18	1.79	3.06	49.60
1940	2.18	4.89	3.35	6.15	0.57	11.11	8.51	2.18	2.50	0.24	1.23	10.30	53.21
1941	1.83	4.33	4.06	1.97	1.48	3.87	7.79	5.08	6.60	2.65	2.19	3.64	45.49
1942	4.96	11.54	5.89	0.89	8.32	12.67	6.30	9.15	4.28	2.65*	0.60	3.56	70.81**
1943	2.74	2.64	5.92	1.14	3.68	2.82	2.90	4.21	9.48	0.39	5.92	5.48	47.32
1944	5.16	2.38	7.64	11.89	1.16	3.58	8 86	8.87	6.59	0.16	8.83	2.55	67.67
Ave.	4.00	4.97	5.35	4.70	4.60	5.22	6.73	6.43	5.49	3.47	3.06	4.87	58.89

* Interpolated

**Partly interpolated
Altitude: 24 feet

T = less than 0.01 inch

Data from U. S. Weather Bureau Publications

CLIMATE

The precipitation and temperature range is that of the Gulf coastal type, being humid and warm, although during occasional periods of winter weather, subfreezing temperatures are experienced. Temperatures as low as one and two degrees Fahrenheit have been reported from Bay St. Louis and Biloxi, but such temperatures are rare in an area generally regarded as subtropical. The rainfall is evenly distributed throughout the year except for brief periods of excessive rainfall during tropical disturbances over the Gulf (Table 1).

ECONOMIC DEVELOPMENT

From the time of the early French settlers in the seventeenth century until about 1880 the coastal area was thinly populated and the economy was agrarian. During the next few decades lumbering was the principal means of livelihood, although the area gained a reputation as a seasonal resort, following the conquest of yellow fever, malaria, and hookworm.[1] Thereafter the increase in population closely followed the building of railroads and highways, until, in 1940, 116,712 people lived within the six counties. Nearly one half of these people lived in seven coastal towns.[2] Gulfport became a shipping point for lumber, Chile nitre, and other products; shipbuilding expanded at Pascagoula; fishing and seafood processing became important at Biloxi, Pass Christian, and Bay St. Louis. Truck farming and the cultivation of fruit, notably peaches and satsuma oranges, and pecan trees throughout the area expanded as the pine forests were cut for lumber. During the last few years the cultivation of tung trees for the oil from the tung nut has become of major importance. Since 1940, the large increase of population resulting from the construction of military bases and war plants has obscured the seasonal tourist fluctuation and has sorely taxed public utilities. Increased withdrawals of ground water along the shore are beginning to multiply problems of water supply, already chronic prior to war-time development.

DRAINAGE

Two large streams drain the area. The Pearl River bordering the west has extensive bottom lands in Pearl River and Hancock Counties. The Pascagoula River crosses George and Jackson Coun-

ties on the east and, with its western tributaries, Red, Black, and Bluff Creeks, drains about half of the six counties. Between the trunk streams are several smaller streams which flow southeast and then turn to parallel the shore in the coastal pine meadows and to enter Mississippi Sound through estuaries or bays. Jordan River, Catahoula Creek, and Wolf River flow into St. Louis Bay; Bayou Bernard, Biloxi River, Tchoutacabouffa River, and Old Fort Bayou flow into Back Bay.

PREVIOUS STUDIES

Of historical interest is a description in the records of the French settlement stating that d'Iberville in 1699 brought a geologist named Leseur from France to examine a "greenish earth or ochre" which had been seen on the banks of the Mississippi.[3] This French government geological study in 1699, which was conducted from old Biloxi on the eastern side of Back Bay, was, according to B. L. C. Wailes,[4] the first official geological government study undertaken on the North American continent; certainly it antedated by 135 years Featherstonhaugh's work for the War Department. There is no record of the results of Leseur's study other than a shipment of the earth to France from Biloxi.

When the newly organized section of hydrology of the U. S. Geological Survey began tabulation of well data in 1903, it was natural that L. C. Johnson of the Geological Survey of Alabama collect and analyze the data in south Mississippi, for he had earlier[5] described and named the geological formations. Johnson's pioneer work resulted in rather detailed information regarding 120 wells in the three coastal counties. His reported depths of wells and static water levels permit a comparison of changes in pressure in the water sands during the last forty years, almost as long as deep wells have been numerous along the coast.

A report by L. W. Stephenson, W. N. Logan, and G. A. Waring, on the ground-water resources of Mississippi, was published in 1928 as U. S. Geological Survey Water-Supply Paper 576. This report included much data on the coastal area.

In recent years, the coastal area has received scant attention; however, the recent discovery of oil in Wayne and Jasper Counties, Mississippi, and in Florida, will doubtless lead to much more exploration in this region.

SCOPE OF STUDY

The investigation was begun in March 1939 by G. F. Brown and E. W. Reed under the general supervision of V. T. Stringfield of the Federal Geological Survey and W. C. Morse of the State Geological Survey. It was continued by V. M. Foster and later by R. W. Adams. W. J. Collins, Jr., and W. B. Jones established elevations on well collars in Harrison and Jackson Counties, and in 1942-1943 H. D. Padgett, Jr., continued the well inventory. The geology was mapped in 1944. Because the area includes four military establishments besides the ship-building industry at Pascagoula, much of the factual information comes from the War Department, especially the U. S. Engineers of the Mobile district. The work has been done through cooperation of the Mississippi Geological Survey and the U. S. Geological Survey. Local interest aroused by the decline in natural artesian pressures in recent years led to the sponsorship of this investigation by the State government. Therefore, the primary purpose of the report is to interpret the available geological and hydrological information concerning the decline of artesian yield in order to establish its trend and to make a beginning on the difficult task of estimating future supplies.

ACKNOWLEDGMENTS

The writers wish to acknowledge the cooperation and interest of citizens, municipal authorities, and well drillers of the coastal area, particularly Mr. Fred Sutter, the late John Sutter, and the late C. R. Switzer, as well as the personnel of the U. S. Engineers, of the War Department, and of the Navy Department, who aided the field work on numerous occasions. Data from military installations have permitted an insight into ground-water conditions that might not have been gained by years of peacetime study. The personal cooperation of Dr. W. C. Morse, State Geologist, has materially aided much of the geological interpretations. The Agricultural Adjustment Agency, U. S. Department of Agriculture, made available excellent aerial photographs on which the geology was mapped; and the extensive net of bench marks recently established by the U. S. Coast and Geodetic Survey gave vertical control for altimeter elevations and spirit leveling. C. E. Jacob of the U. S. Geological Survey provided valuable assistance with the mathematical analyses of pumping data.

Plate 3.—Vertical aerial photograph of the terrain of the Citronelle formation showing four recent blow-outs of sand in the northern part and eight older partly filled depressions, marked by vegetation, in the southern part. The elevation of the road at the southern edge of the largest blow-out (east center) is 280 feet. Note that only the largest tributaries have a drainage outline except where cultivated and contoured sand hills (west center) emphasize a stream trace. The road junction near the southwest corner, Locality B, is at the center of the SW. 1/4, Sec. 13, T. 2 S., R. 11 W., Stone County. Photo courtesy U. S. Department of Agriculture, Agricultural Adjustment Agency. March 29, 1942. Scale 1:20,000.

Specific acknowledgments to drillers who furnished well records published in this report are given in the tables of logs and well records (Tables 13-18).

GEOMORPHOLOGY

GENERAL FEATURES OF THE COASTAL BELT

The three broad divisions of land-forms in the small portion of the Gulf coastal plain here considered are the long leaf pine hills, the coastal pine meadows, and the alluvial plains of the larger streams, principally the Pearl and Pascagoula Rivers. The alluvial plains merge with the coastal pine meadows; both are relatively flat and locally swampy. The coastal pine meadows lie 5 to 30 feet above the sea; the alluvial plains rise northward to an altitude of 50 feet along Pascagoula and Escatawpa Rivers and to 100 feet along the Pearl River. Both the coastal meadows and the alluvial river bottoms are bordered by salt-water mashes, the largest areas being the estuarine mouths of the Pearl and Pascagoula Rivers. The long leaf pine hills rise from 30 to 370 feet above mean sea level. They include stream-cut terraces along the trunk streams and high terrace deposits which extend across the area in a pattern suggesting distributary ridges. Most of the upland topography is the result of recent erosion on weak beds of clay, silty clay, and sandy clay of the Miocene-Pliocene-Pleistocene estuarine and deltaic sediments which underlie it (Plate 4).

The soils have been described as light-colored,[6] sandy types of loam predominating even in areas where the clays of the Miocene, Pliocene, and Pleistocene series are exposed in stream beds. The dark-colored and heavy soils are limited to the swamps and flats underlain with clay where the water table is high and drainage is poor. In most areas the soils are acid, because lime carbonate was originally lacking; in other minor areas, because it was subsequently leached out.

Nearly all of the area has been deforested, most of it since 1900. Long leaf pine formerly predominated on the uplands but was mixed with slash and short leaf pine on the lower terraces. The bottom lands were covered with a variety of deciduous hardwood trees, such as several species of gum and oak, and with evergreens, such as pine, live oak, magnolia, holly, and cypress. Gum, cypress, magnolia, and

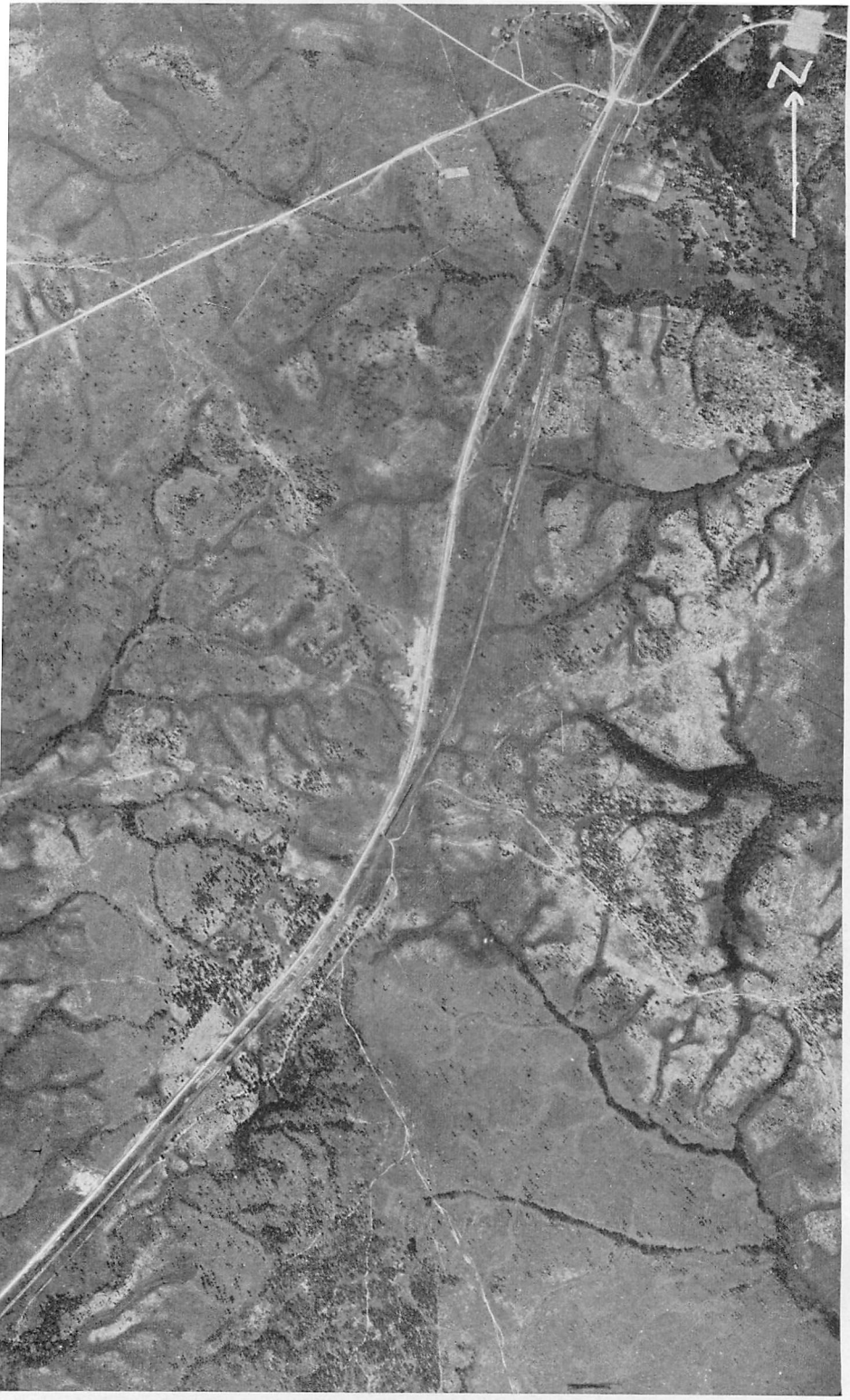


Plate 4.—Vertical aerial photograph showing lace-like dendritic drainage pattern on the clay terrain of the Graham Ferry and Pascagoula formations. The Pearl River Clay Company pit is at the center of the photograph, and the altitude of the road-railroad at Millard (northern edge) is 172 feet (Locality H, parts of Secs. 3, 4, 9, 10, 15, 16, T. 4 S., R. 16 W.), Pearl River County. Photo courtesy U. S. Department of Agriculture. Agricultural Adjustment Agency. April 1, 1942. Scale 1:20,000.

maple are common in the swampy areas where some primitive stands remain because of their inaccessibility. Pine through reforestation and pecan groves, tung trees, and fruit orchards through cultivation now comprise a substantial part of the vegetation. Of the shrubs, saw-tooth and blue palmetto are conspicuous on sandy terrain; and various grasses and sedges dominate the brackish and salt-water marshes where trees are absent.

LONG LEAF PINE HILLS

SURFACE OF THE CITRONELLE FORMATION

The highest upland in the coastal area is on top of the Citronelle formation, a terrace deposit seemingly of fluvial origin. East of the Pascagoula River in George County three benches on this upland lie at altitudes of 200 to 230 feet, 260 to 280 feet, and 300 to 310 feet, the benches sloping upward toward the northeast. In Greene County the upper bench slopes upward to approximately 335 feet; and near Citronelle in Mobile County, Alabama, to approximately 340 feet. West of the Pascagoula River and north of Red Creek the beveled crests slope upward to the northwest, being 160 to 205 feet in northwestern George County, 85 to 230 feet west of Bluff Creek in eastern Stone County, and 170 to 325 feet along U. S. Highway 49 through Wiggins in central Stone County. In western Stone and northeastern Pearl River Counties the crest elevations extend from approximately 230 feet to 370 feet. Doubtless there are benches on this western upland, but they cannot readily be recognized without topographic maps. In southern Pearl River and northern Hancock Counties the Citronelle formation has been warped down in a southwesterly direction until its upper surface disappears beneath younger deposits or is truncated by more recent erosion at altitudes of 60 to 90 feet. In Harrison and western Hancock Counties the crests of deposits, lithologically similar to the Citronelle and mapped with it, drop from heights of about 270 feet (as just across the line in southern Stone County) to about 50 feet where they disappear beneath younger deposits—declines similar to those in eastern Stone and western George Counties.

The greater part of the Citronelle formation is porous sand and gravel; consequently, rain seeps into the ground and erosion has been hindered, particularly prior to deforestation; thus, the upland remains youthful, preserving dune and original depositional features.

Figure 2.—Panorama of a partly filled depression, now 5 feet deep, and of a wind-blown sand rim, 1 foot high, on the surface of the Citronelle formation (Locality F, NE. 1/4, SW. 1/4, Sec. 32, T. 2 S., R. 5 W.), George County. View towards the southeast. The 240-foot contour falls within the depression.

Local areas of sand, which have migrated recently as a result of wind action, range from small pockets to blow-outs larger than 1 square mile (Plate 1). The general circular or elliptical shape of many of the blow-outs suggest that some local removal of vegetation, such as by a fire, has given the wind access to the sand. Many older depressions (which may not be blow-outs because the typical ridge rims are missing) are partly filled; some by silt and humus causing small swamps and ponds (Figure 2). These depressions are clearly outlined on aerial photographs as are the white circular ridges of sand around the recent blow-outs (Plate 3).

TERRAIN OF THE GRAHAM FERRY AND PASCAGOULA FORMATIONS

The clays, silts, and minor sands of the Graham Ferry and Pascagoula formations crop out in large areas, mostly along the streams and in their upper valleys. The topography is typically gently rolling and the drainage pattern is lace-like and dendritic, in sharp contrast to the coarser-textured pattern on the surfaces of alluvial deposits (Plate 4). Much of the area underlain by the Graham Ferry and Pascagoula formations in Pearl River, Stone, and George Counties and in the northern parts of Hancock, Harrison, and Jackson Counties lies between 150 and 200 feet above mean sea level. Near the coast the weak clay topography extends down along the streams to altitudes of about 20 feet, except for a clay ridge in eastern Hancock and southwestern Harrison Counties. A hill on this ridge attains a height of 90 feet above the Gulf 1 mile north of St. Louis Bay.

HIGH TERRACE

In the vicinity of the Pearl and Pascagoula Rivers the Citronelle formation has been reworked and laid down upon a lower stream-beveled surface. In George County the flat of this terrace deposit lies between two scarps which trend southeast from the Pascagoula River. The surface declines from about 190 feet on the northwest to about 65 feet on the southeast. The flat areas are characterized by depressions which drain into the ground and the topography cannot be sharply separated from that of the Citronelle formation itself except that it is below the Citronelle and separated from it south of Lucedale by a strip of clay belonging to the Graham Ferry formation or the Pascagoula formation. In Pearl River County the

High terrace material is not so well consolidated as the Citronelle, and the upper surface at an altitude of 150 to 200 feet is somewhat more irregular.

LOW TERRACE

East of the Pascagoula River in southern George and northeastern Jackson Counties a strath terrace is separated from the High terrace by a 40-foot scarp. The Low terrace slopes southeast from an elevation of about 100 feet in George County to 20 feet in the vicinity of Escatawpa River, Jackson County, but most of it is 30 to

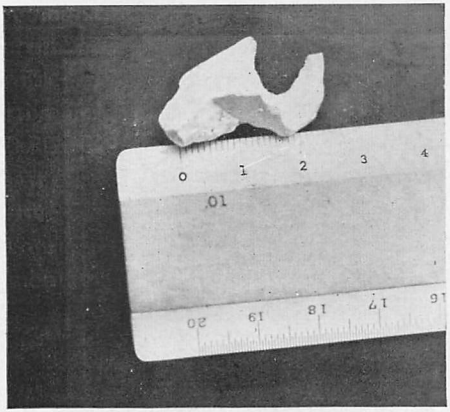


Figure 3.—Mollusk borings in flattened pebble from old beach (SW. 1/4, NE. 1/4, Sec. 35, T. 6 S., R. 10 W.) now at an elevation of 42 feet, 6 miles northwest of Biloxi, Harrison County. Scale in centimeters.

55 feet above sea level. The terrace deposits are thin and locally the clays of the Graham Ferry formation are exposed. Relics of distributary ridges and old meanders are clearly marked in this area (Plate 1). West of the Pascagoula River in Jackson County and in Harrison and Hancock Counties some flat areas 50 to 80 feet above the sea may be contemporaneous with the strath terrace east of the Pascagoula River. Flattened pebbles in the beach shingle at an altitude of 42 feet contain mollusk borings (Figure 3) which strongly suggest, but do not prove, that the sea stood at this height. Much of the southern portions of these surfaces or surface is occupied by beach ridges of sand (Plate 1, Figure 6) which now crest at 40 to 45 feet. These ridges could be correlated with C. W. Cooke's[7] Talbot

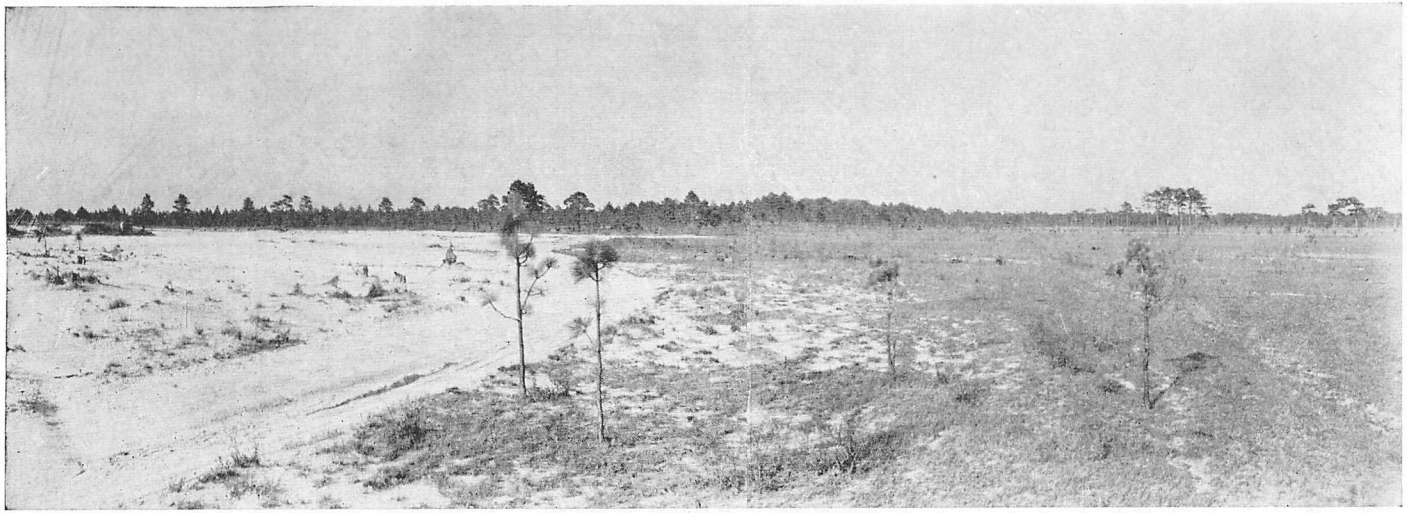


Figure 4.—Eastward panorama at gravel bank (old beach SW. 1/4, NE. 1/4, Sec. 35, T. 6 S., R. 10 W.) at the northern edge of Pamlico plain, 6 miles northwest of Biloxi, Harrison County.

terrace (42 feet above present mean sea level), or they could be dune-capped ridges associated with the Pamlico terrace (25 feet above the present level), or they could belong to some older, higher terrace now warped down. Certainly some of the sand behind the ridges results from continental deposition of a later date. The area, shown on the geologic map as the Low terrace, is dissected by recent streams and is so obscured by alluvium from the adjacent Citronelle formation that it could be warped. Immediately west of Pascagoula River, the Low terrace is certainly warped down locally some 20 feet, as shown by the continuity of the beach ridges.

COASTAL PINE MEADOWS

PAMLICO PLAIN

The Pamlico plain is essentially the coastal pine meadows except along the present shore where the meadows rest on beach and eolian deposits associated with present sea level. The plain is nearly flat or gently undulating and locally swampy and is sharply defined on its northern edge by a wave-cut and stream-cut scarp about 15 to 20 feet high (Figure 5). The northern edge of the plain at Bayou La Batre, Alabama, where it is sharply defined, lies near the 30-foot contour. Near the Mississippi line 6 miles west of Bayou La Batre, the scarp rises from the 20-foot contour. Trending north-northwest, it faces the Escatawpa River which is nearly parallel to the State line. It rises to about 25 feet east of the junction of Big Creek and Escatawpa River. Between the Escatawpa and Pascagoula Rivers the scarp trends northwest along the 20-foot contour. West of the Pascagoula River the plain is bordered by an old beach promontory locally called Big Ridge, which rises from altitudes of 20 to 33 feet on the Pamlico plain to 40 to 45 feet on its crest. It extends across western Jackson and Harrison Counties (Plate 5, Figure 4). Recent alluviation accounts for the higher elevations of the northern edge of the plain. The beach and dune ridges whose southern edge marks the northern boundary of the Pamlico plain continue across Hancock County at crest elevations of 40 to 45 feet; the near-by plain is 15 feet lower.

The altitude of the Pamlico plain is from sea level to 25 feet, a relief somewhat greater than the relief on the floor of Mississippi Sound, in part because of subaerial Recent erosion and alluviation. East of Pascagoula River the altitude of the meadows ranges from

Plate 5.—Vertical aerial photograph of fossil beach ridges of the Low terrace at the northern edge of the Pamlico plain. The ridges are emphasized by the pattern of secondary consequent drainage and by the areas darkened by ground water. The ridges have amplitudes of 1 to 5 feet where drainage has accentuated them. They crest at altitudes of 40 to 45 feet (barometer). The scarp at the hill of the Pamlico plain traverses the picture from the southeast corner to the middle of the western edge, crossing the right angle bend in the stream. The road junctions are near the southwest corner of Sec. 3, T. 7 S., R. 8 W., Jackson County. Photo courtesy U. S. Department of Agriculture, Agricultural Adjustment Agency. March 28, 1942. Scale 1:20,000.

sea level to 18 feet, but most of the area is approximately 10 feet. The higher areas are in the vicinity of Pascagoula and Moss Point along a natural levee resulting from overflow onto the low plain to

Figure 5.—The scarp at the heel of the Pamlico plain looking north from U. S. Highway 90 (Grand Bay Quadrangle, NE. 1/4, Sec. 4, T. 7 S., R. 4 W.), Mobile County, Alabama, 1 1/4 miles east of State line. The 20-foot contour line is near the base of the slope.

the east. The plain rises from 10 to 20 feet within the first 2 miles west of the Pascagoula in Jackson County, the general level extending back from the shore as far west as Pass Christian, Harrison County. A series of low beach or dune ridges whose crests locally reach 33 feet (Plate 6) form the outer edge of the plain from Pascagoula River west to St. Louis Bay. The intervening swales are 15 to 20 feet above mean sea level. At Pass Christian the plain decreases to an altitude of 10 feet or less and much of it lies below 5 feet along the northern shores of St. Louis Bay, particularly in the vicinities of Jordan and Wolf River estuaries. The plain is about 23 feet above the sea at Bay St. Louis, decreasing to about 17 feet 9 miles west. The elevations along the natural levee of the Pearl River, where the Recent alluvial plain merges with the Pamlico, decrease from 38 feet in the northwestern part of Hancock County

Plate 6.—Vertical aerial photograph of Recent beach ridges (Point Clear Island) partly submerged and tidal marsh deposits near the mouth of Pearl River, Hancock County. The ridge group is 3 1/2 miles long, 1 to 2 miles wide, and includes nine visible ridges. Remnants of an older ridge parallel Bayou Pistache (elliptical course) and Bayou Caddy (rectangular course). The Gulf and Ship Island Railroad crosses the northwestern corner of the photograph (Sec. 25, T. 9 S., R. 15 W.), Hancock County. Photo courtesy U. S. Department of Agriculture, Agricultural Adjustment Agency. March 28, 1942. Scale 1:20,000.

to 20 feet at U. S. Highway 90, 5 miles east of the Pearl River bridge. The highest elevations in southwestern Hancock County are 15 to 20 feet above the sea except in the extensive salt-water marshes.

Figure 6.—Southern edge of the Low terrace on the left, Pamlico plain on the right, looking southeast from fire tower. The road and sand pit, at an altitude of about 30 feet, are along the edge of the Low terrace (Southwest corner Hurley Quadrangle, Locality S, NE. 1/4, Sec. 20, T. 6 S., R. 5 W.), Jackson County.

The aerial photographs of the Pamlico plain show interesting ancient meander patterns, formed after the plain emerged from the sea (Plate 1). Apparently at one time the Pascagoula River flowed into Mississippi Sound near the Alabama line where there is a nearly perfect fossil delta complete with flank depressions and barrier islands—the Rigolets Islands, Point aux Chenes Bay, Middle Bay, and the Grand Batture Islands. The Wolf River flowed into a lagoonal depression behind Long Beach, and the Pearl River flowed into St. Louis Bay. All these streams have shifted west against their right banks, possibly as a result of deflection due to rotation of the earth.[8] Another explanation of the uniform lateral shift would be tilting of the coastal meadows toward the Mississippi delta, but the evidence for this is lacking, except possibly near the mouth of Pearl River. Still another explanation of the deflection would be

the building of sand bars by east-to-west shore-wise drift as suggested by C. Wythe Cooke.

RECENT BEACH AND ISLAND TOPOGRAPHY

Shore-wise currents in the Gulf have formed off-shore bars of sufficient height to be further elevated by the waves into sand spits, and by the southern winds to higher dunes and elongated east-west islands. Dunes on Petit Bois Island, which is 7 1/2 miles long, rise to 20 feet above mean sea level at only one point on the western end; other dunes of heights above 10 feet extend along the southern edge and along part of the northern shore near the eastern end of the island. Much of the eastern part of the island has been washed away since 1921. Horn Island, which is 13 miles long, has several dune peaks above 20 feet, but of very limited extent, and much of the inter-dune area is occupied by brackish water ponds. Ship Island, which is 8 miles long, is about the same general elevation of Horn Island or slightly lower than it. Much of the northern shore of Ship Island is a low cliff which—in at least one place about 3 miles east of Fort Massachusetts where E. N. Lowe photographed a flowing well prior to 1915—has migrated south about 100 yards, leaving the well in Mississippi Sound (Harrison 203, Table 15). Cat Island, westernmost of the barrier islands, is unique in that its eastern portion is a 4-mile spit and dune belt which is perpendicular to the coast. W. T. Penfound and M. E. O'Neill described the island in 1934 as follows:[9]

"Cat Island comprises an area of about seven square miles. It consists of two east-west axes attached at their eastern extremities to a long, narrow, north-south axis which is convex on the gulf side. The more northerly east-west spit is composed of two to sixteen sand ridges from four to ten feet in height and from a few feet to an eighth of a mile in width. These alternate with parallel depressions in which the floor is usually wet and often continuously covered with water, in some places to a depth of six feet. The other spit includes fewer and lower sand ridges and is mainly marshy in character.

"The north-south spit is very different from either of the foregoing. It is composed of an eroding shoreline on the gulf side, various hillocks and dunes on the interior, and a zone of deposition on the western shoreline. On the gulf shoreline ghost forests of pine and oak extend more than a hundred feet into the gulf, and black,

peaty soil, which could have been formed only in the marshes, is a conspicuous feature of the lower beach. The dunes vary from small haystack dunes a few feet in height to wandering, barren dunes of considerable extent and up to forty feet in height. They are composed

Figure 7.—The eroded beach at Bellefontaine Point showing encroachment of the sea on a former forest of pine and cypress (Locality U, SW. 1/4, SW. 1/4, Sec. 19, T. 8 S., R. 7 W.), Jackson County.

of a glistening fine to medium white sand with a negligible quantity of organic matter and often very low water content. Throughout the dune area many blow-outs occur, and the Island is constantly changing in topography. At the junction of the east-west spits with the north-south axis the sand is advancing steadily over the marsh. This fact, together with the presence of peaty soil and ghost forests on the gulf shoreline, indicates that the island is gradually moving westward."

On the mainland the recent rise in sea level has submerged much of the lower beach deposits and at the present time is actively eroding the headlands (Figures 7, 8). The beach ridges along the present shore doubtless owe part of their present height (up to 33 feet) to Recent wind-blown sand, but the base may have been formed as true beach ridges when the Gulf stood at a slightly higher level or during storms at its present level.

GEOLOGY

OUTLINE OF GEOLOGICAL FORMATIONS AND THEIR WATER-BEARING PROPERTIES

The coastal area is underlain by a series of estuarine or deltaic sediments that contain fresh water and that dip southwestward toward the Mississippi delta. These sediments range in age from Miocene to Pleistocene and are not readily separated into strati-

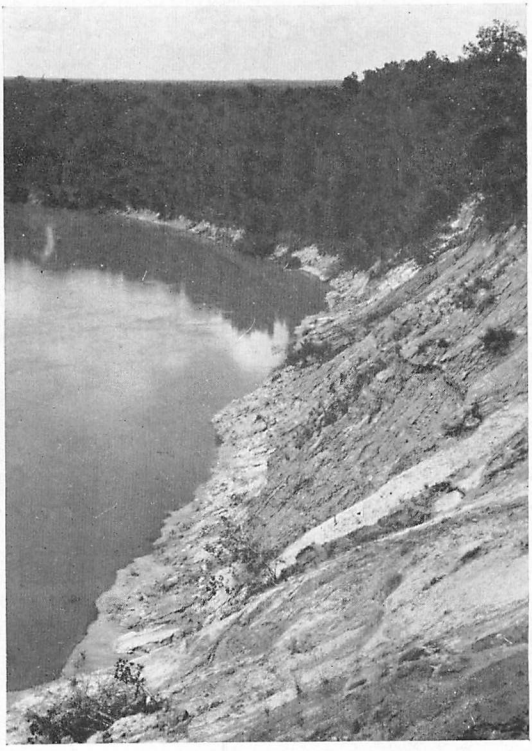
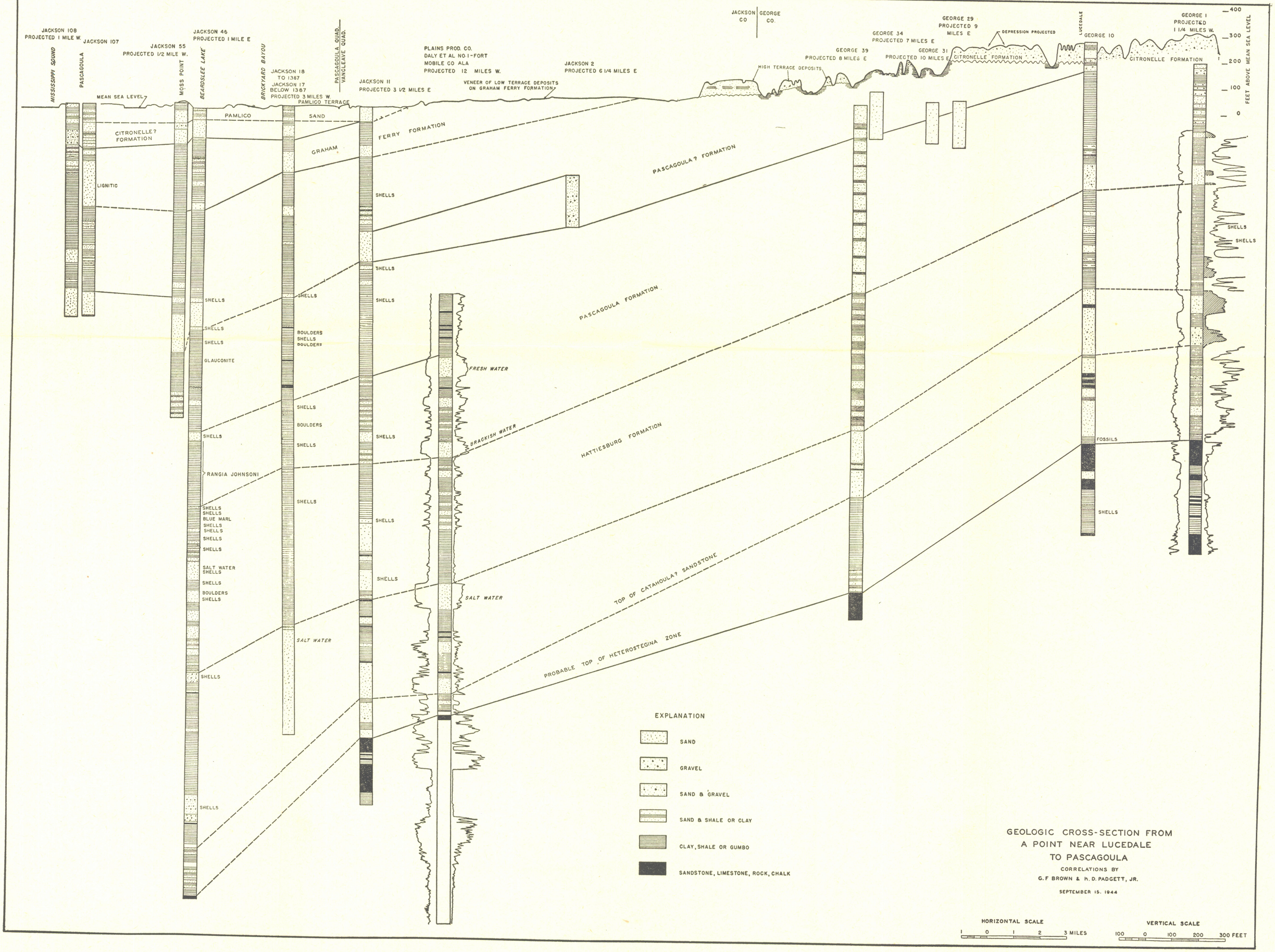


Figure 9.—A bluff in northwestern Pearl River County (Locality A, SW. 1/4, Sec. 5, T. 1 S., R. 17 W.), showing clay of the Pascagoula (?) formation at river level, overlain by sands and clays of the Graham Ferry formation, and, in the upper part, High terrace deposits. The alluvial plain of Pearl River may be seen to the north.

graphic units. Overlying these beds, which produce artesian water, are Pleistocene and Recent terrace and stream valley deposits which

MISSISSIPPI STATE GEOLOGICAL SURVEY
WILLIAM CLIFFORD MORSE, DIRECTOR

BULLETIN 60
PLATE 7



EXPLANATION

- SAND
- GRAVEL
- SAND & GRAVEL
- SAND & SHALE OR CLAY
- CLAY, SHALE OR GUMBO
- SANDSTONE, LIMESTONE, ROCK, CHALK

GEOLOGIC CROSS-SECTION FROM A POINT NEAR LUCEDALE TO PASCAGOULA

CORRELATIONS BY
G. F BROWN & H. D. PADGETT, JR.

SEPTEMBER 15. 1944

HORIZONTAL SCALE
1 0 1 2 3 MILES

VERTICAL SCALE
100 0 100 200 300 FEET

ALLUVIAL PLAINS

The coastal pine meadows merge with the alluvial plains of the Pearl, Pascagoula, and Escatawpa Rivers. The lowest parts of the valleys of these streams were scoured out of the Pascagoula and Graham Ferry formations following Pamlico time when the base

Figure 8.—A wave-cut scarp (Near Locality U, SE. 1/4, SE. 1/4, Sec. 18, T. 8 S., R. 7 W., Jackson County) at Bellefontaine Point where the sea is cutting into beach and dune ridges of the Pamlico plain.

level of the area was lowered. The most recent geologic event is a rise in sea level, accompanied by accelerated sedimentation in the valleys, as a result of deforestation. Accordingly, these deposits occupy swamps near the stream mouths, in the rim areas away from the natural levees, and in the natural levees on the Pamlico plain near the sea. The alluvial plain rises from sea level to 100 feet at the northwestern corner of Pearl River County along Pearl River (Figure 9). The plains of the Pascagoula and Escatawpa Rivers rise from sea level to 50 feet within Mississippi. Alluvium has also accumulated up to elevations of more than 100 feet along tributary streams, particularly Red Creek, in sufficient thickness to yield small water supplies (Plate 1).

are involved in the structure but are not developed aquifers (Chart of Geologic formations).

In order to separate the sediments into stratigraphic units so far as that is possible, first consideration is given to the paleontologic evidence. Unfortunately this information is not at present sufficient to make the correlations entirely trustworthy, especially in the sediments above the Miocene *Rangia johnsoni* zone. Second consideration is given to the lithology, based on some mineralogic information in drill cuttings, electrical logs, and, in most wells, the driller's description of the various strata. The sands and gravels are placed at the base of the formations, the clays and shales in the upper parts, except where such an arrangement conflicts with the paleontologic evidence. No attempt is made to correlate the terrace deposits, including the Citronelle formation, with similar deposits in neighboring states, because exact heights of the surfaces are incompletely known and because the older surfaces, together with their underlying deposits, have been warped, especially in the western part of the area. When adequate topographic maps are available for the areas where the surfaces have been disturbed, correlation with eustatic changes and even with the glacial epochs may be possible.

MIOCENE SERIES

CATAHOULA SANDSTONE

The oldest formation here considered is the Catahoula sandstone of early Miocene age. The only part of the formation which contains fresh water lies above the *Heterostegina* marine zone, the top of which marks the base of fresh water on the crest of the Wiggins-Lucedale anticline. The beds included are believed to be beneath the *Amphistegina* zone of Dr. D. W. Gravell and M. A. Hanna[10] which they correlate with the Oakville sandstone of Texas, a possible equivalent of the Hattiesburg formation.[11]

The top of the Catahoula sandstone, as shown on Plates 7, 10, 11, is an arbitrary boundary. J. T. McGlothlin[12] states in his recent summary of the geology of Mississippi that he knows of no diagnostic criteria for recognizing the top of the Catahoula in the subsurface, and the *Amphistegina* zone seemingly does not extend far north of Mississippi Sound. If the 190-foot sand section at a depth of 1,000

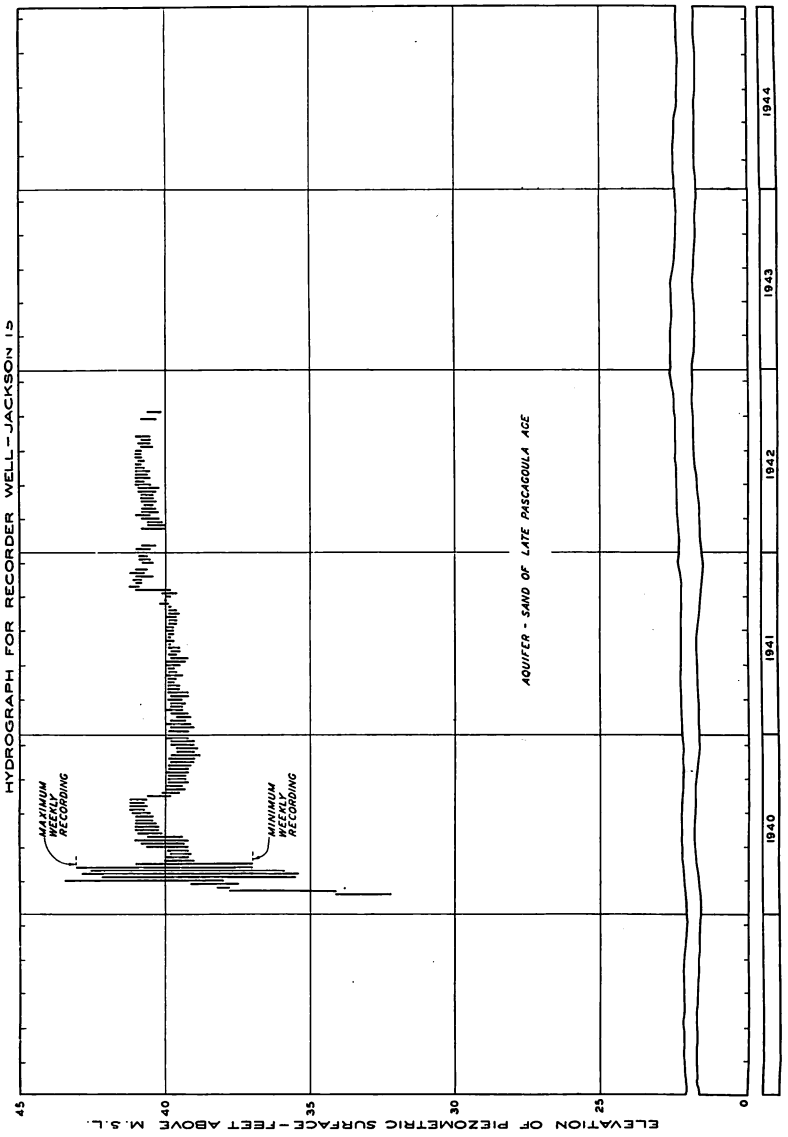


Plate 8.—Hydrograph for recorder well—Jackson 15.

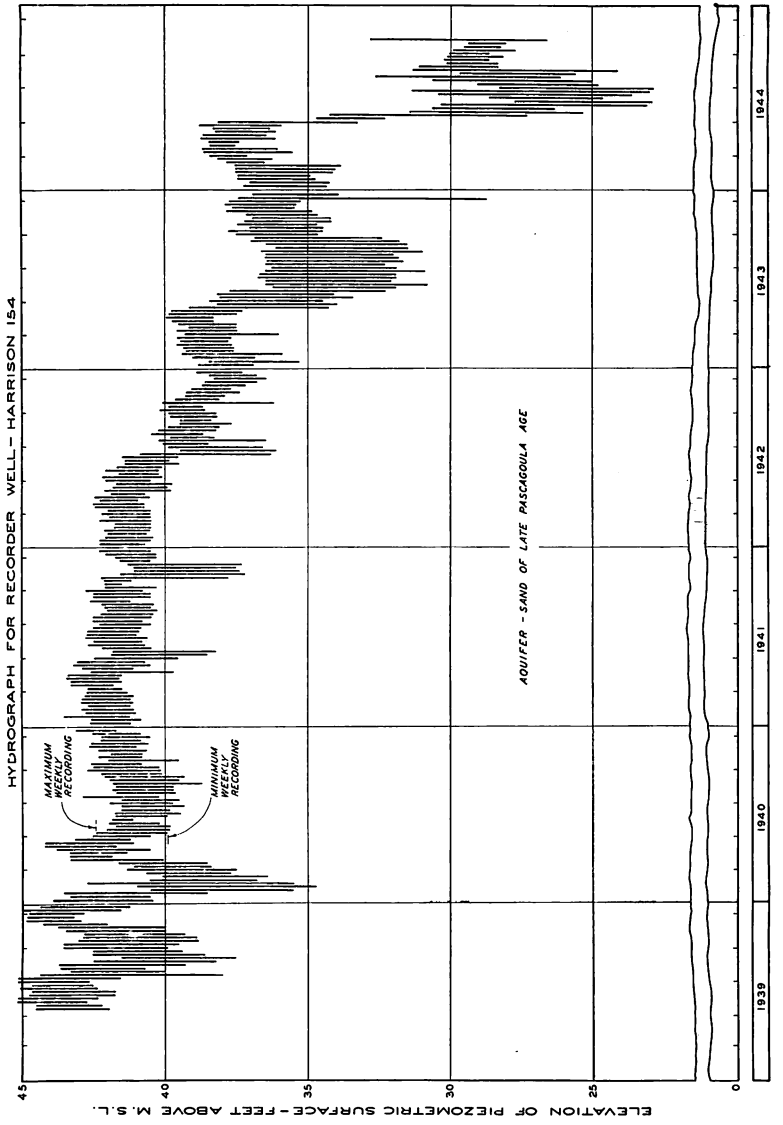


Plate 8A.—Hydrograph for recorder well—Harrison 154.

to 1,190 feet in the Placid Oil Company's R. Batson Estate No. 1[13] be considered Catahoula, in line with the idea that the Catahoula represents the coarse base of the Miocene-Pliocene-Pleistocene estuarine and deltaic series (as it appears to do in the Camp Shelby area), a correlation with at least part of the *Amphistegina* zone on the coast seems unavoidable. Thus, if paleontology be considered of prime importance, it seems best, at least until more evidence is forth-

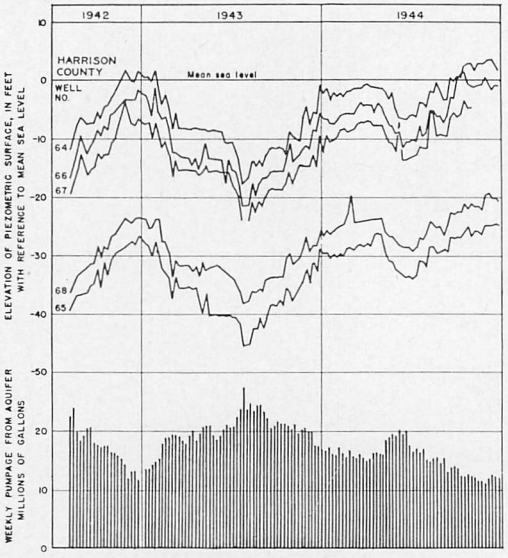
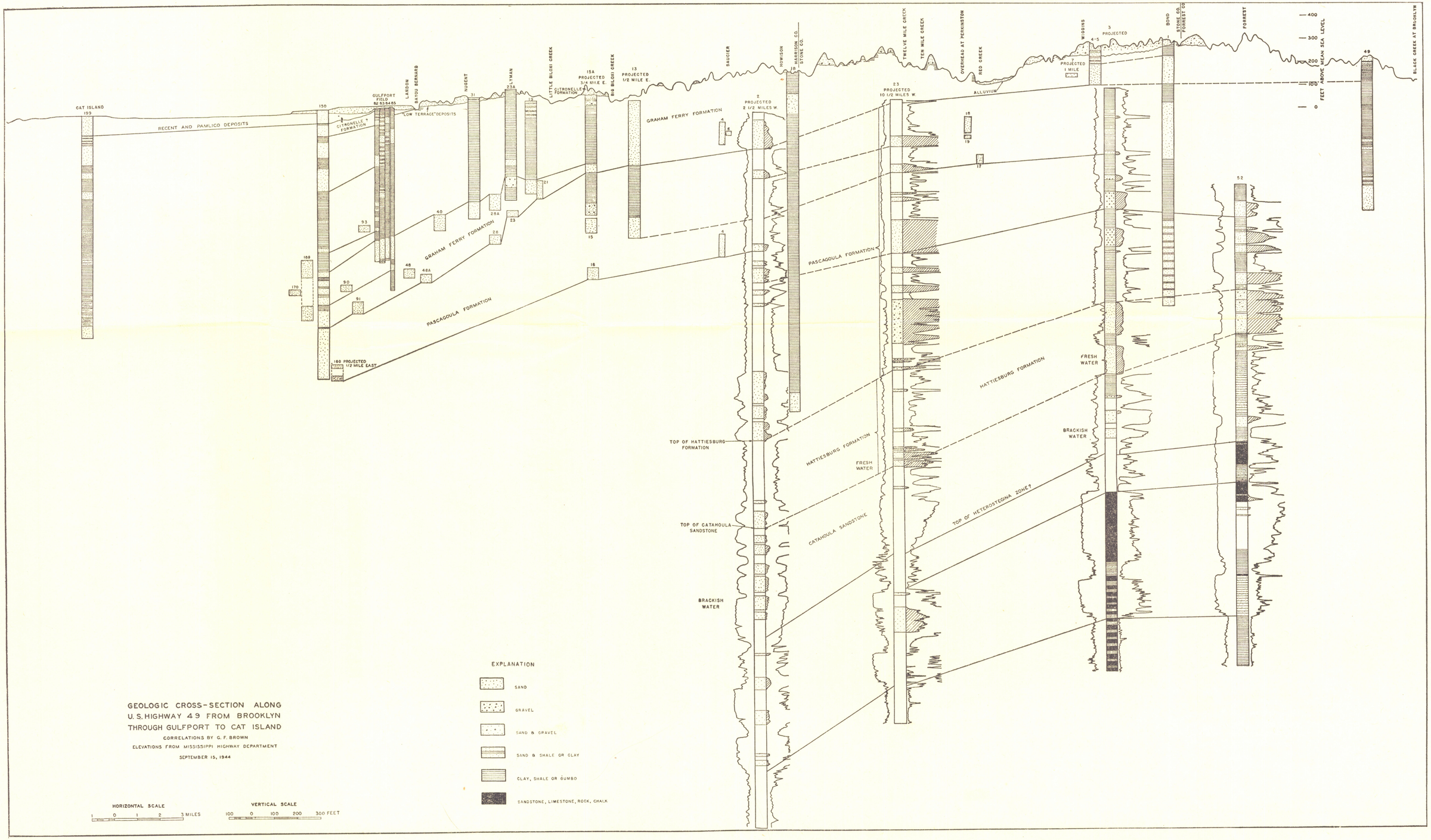


Plate 9.—Graphs showing fluctuations of water level and weekly production of water from the Graham Ferry formation at Keesler Field, Biloxi.

coming, to consider the 450 feet of shale, sandy shale, and minor sand and gravelly sand in the R. Batson Estate well as upper-nonmarine Catahoula, placing the overlying sand in the base of the Hattiesburg formation as a correlative of the Oakville sandstone. In George County the upper-nonmarine Catahoula sediments are about 400 feet thick; they thin to the west from 300 to 375 feet in Stone County and thicken to at least 560 feet in Pearl River County. Fresh-water sands are prominent at depths of 1,500 to 1,800 feet in northern Pearl River County. The remainder of the sediments seems to be clay, silt, shale, and sandy shale but may include gravelly sands which are important farther north.



GEOLOGIC CROSS-SECTION ALONG
U. S. HIGHWAY 49 FROM BROOKLYN
THROUGH GULFPORT TO CAT ISLAND

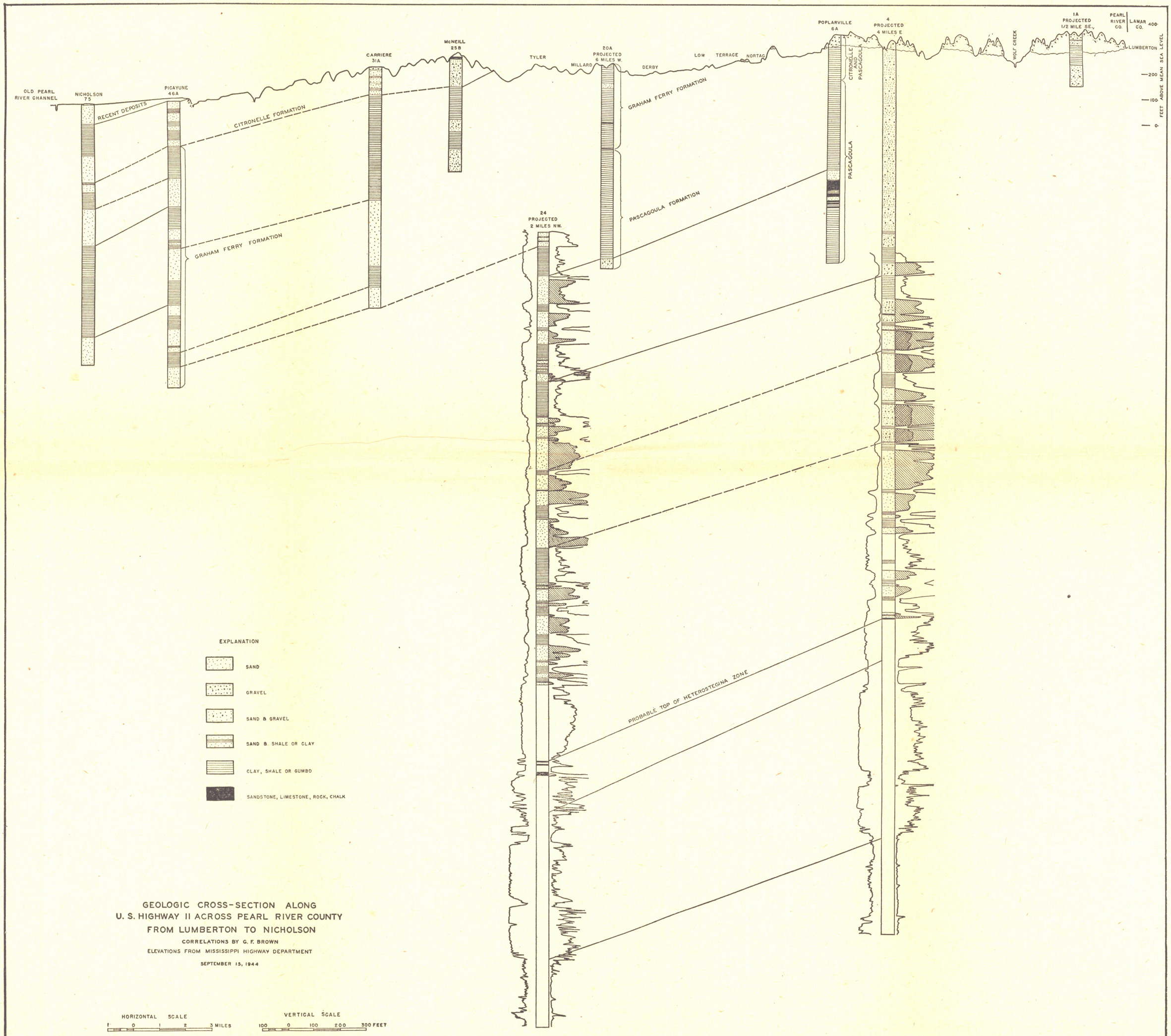
CORRELATIONS BY G. F. BROWN
ELEVATIONS FROM MISSISSIPPI HIGHWAY DEPARTMENT
SEPTEMBER 15, 1944

HORIZONTAL SCALE
1 0 1 2 3 MILES

VERTICAL SCALE
100 0 100 200 300 FEET

EXPLANATION

- SAND
- GRAVEL
- SAND & GRAVEL
- SAND & SHALE OR CLAY
- CLAY, SHALE OR GUMBO
- SANDSTONE, LIMESTONE, ROCK, CHALK



EXPLANATION

- SAND
- GRAVEL
- SAND & GRAVEL
- SAND & SHALE OR CLAY
- CLAY, SHALE OR GUMBO
- SANDSTONE, LIMESTONE, ROCK, CHALK

GEOLOGIC CROSS-SECTION ALONG U. S. HIGHWAY 11 ACROSS PEARL RIVER COUNTY FROM LUMBERTON TO NICHOLSON

CORRELATIONS BY G. F. BROWN

ELEVATIONS FROM MISSISSIPPI HIGHWAY DEPARTMENT

SEPTEMBER 15, 1944

HORIZONTAL SCALE
1 0 1 2 3 MILES

VERTICAL SCALE
100 0 100 200 300 FEET

The Catahoula sandstone, which contains important supplies of fresh water north of the coastal area, is too deeply buried in this area to be of economic importance except for oil or gas. Also the electrical logs of oil prospect wells indicate that all of the Catahoula contains brackish or salt water except in the nonmarine sediments above the *Heterostegina* zone (somewhere near the middle of the Catahoula sandstone), and in these beds fresh water is found only on the crest and higher portions of the flanks of the Lucedale-Wiggins anticline in George, Stone, and northern Pearl River Counties. No water supplies are at present derived from these beds, and the little that is known of them comes from oil prospect wells.

HATTIESBURG FORMATION

The Hattiesburg formation includes the sediments wherein the *Amphistegina* faunal assemblage has been found[14] plus nonmarine clastic sediments (at least in the northern part of the area) which lie above the Catahoula sandstone and below the sediments wherein *Rangia johnsoni* abound. It is probably of middle Miocene age, and contemporaneous, at least in part, with the Oakville sandstone on the west and the Alum Bluff group on the east. Exposures of the nonmarine Hattiesburg clays, silts, and minor sands extend in an easterly direction along a 35-mile wide belt north of the coastal area, but near the coast the regional southern dip depresses them to depths too great to yield fresh water except on the Lucedale-Wiggins anticline.

The thickness assigned the Hattiesburg is more or less arbitrary in the subsurface for the reason that the stratigraphic position of the base is arbitrary. The beds assigned to the Hattiesburg on the cross-sections (Plates 7, 10, 11) range in thickness from 350 to 1,500 feet, the smaller on the crest of the Lucedale-Wiggins anticline, the larger at Pascagoula. Doubtless a greater thickness will be found in the southwestern part of the area, but 500 feet seems a logical average thickness.

Gray-green and blue-green shale and clay, gray sand and silt of the Hattiesburg are mostly carbonaceous and noncalcareous toward outcrops, but beneath the coastal area are probably calcareous for marine fossils (*Amphistegina* zone) have been identified,[15] and the sediments contain more sand and some gravelly sand. Many of the pebbles and grains are polished black chert.

CHART OF GEOLOGIC FORMATIONS CONTAINING FRESH WATER IN THE COASTAL AREA OF MISSISSIPPI

Series	Formation	Known Thickness (feet)	Physical Character	Hydrologic Properties
Pleistocene and Recent	Alluvium	0-35+	Chert and quartz gravels and sands grading up into sandy clays and silt. Much organic debris including sawdust near and in the tidal marshes.	Contains large undeveloped supplies especially attractive because of uniform low temperature (70°F.) throughout the year. The southernmost portions of the Pascagoula River alluvium are known to contain salty water, and the other estuaries are probably similar; consequently large developments should be located with care.
Pleistocene	Pamlico Sand	1-75	Mostly unconsolidated gray and tan sand; locally contains pebbles of quartz and chert and, in former lagoonal areas, much clay and silt.	Contains much water in the beach areas under water-table conditions and in contact with salt water. In many places the supply has been contaminated with sewage, but would be suitable for air-conditioning if salt-water connection is considered.
	Low Terrace Deposits	0-20	Sand derived from beach deposits, locally sprinkled with pebbles of quartz and brown chert.	Insufficient thickness and areal extent to yield other than small shallow wells for domestic and stock consumption.
	High Terrace Deposits	0-100	Sand and gravel wherein quartz is more abundant and chert less abundant than in the older adjacent Citronelle formation; locally an iron-cemented conglomerate at the base.	Small farm supplies are derived from the High terrace deposits. The elevated position facilitates drainage through springs and effluent seepage, so that only the lower few feet are saturated.
	Citronelle Formation	0-160	Brick-red sand and gravelly sand; the pebbles are mostly brown chert and milky quartz; generally cross-bedded, and, in the lower part, contain thin beds and pockets of gray clay and clayey gravel.	Numerous small farm supplies derived from a few feet of saturated sand and gravel in the lower part of the formation. Salt-water encroachment ruined a supply at Moss Point which probably came from a finger of the Citronelle gravel.
Pliocene and Pleistocene	Graham Ferry Formation	113-975	Silty clay and shale, sand, silty sand, and gravelly sand and gravel in heterogeneous deltaic masses; various colors, generally dark; carbonaceous clay most abundant in the outcrops; marine fossil casts in the upper beds are common.	The most intensively developed formation, containing water under artesian pressure throughout southern part of the area. Most water for war purposes has come from the Graham Ferry, and there is no evidence of excessive development.
Miocene	Pascagoula Formation	800-1,300	Clay and shale, generally blue-green, silt, sandy shale, gray and green sand, gray silty clay, and dark sandy gravel containing numerous grains and pebbles of polished black chert; of estuarine or deltaic origin; identified for the most part by a brackish water clam, **Rangia johnsoni.**	About 40% of water produced in the coastal area has come from artesian sources within the Pascagoula formation. The eastern part, Jackson and eastern Harrison Counties, contains some brackish water, the salt content increasing with depth and towards the east.
	Hattiesburg Formation	350-1,500	Gray-green and blue-green shale and clay, gray sand and silt, mostly carbonaceous and noncalcareous—of a more continental origin than overlying beds.	Undeveloped supplies along the crest of the Wiggins-Lucedale anticline in the northern part of the area. The remainder of the formation contains brackish or salt water.
	Catahoula Sandstone above Heterostegina Zone	300-560	Shale, sandy shale, sand, clay and silt, and gravelly sands containing black chert.	The uppermost Catahoula sandstone contains fresh water on the crest of the Wiggins-Lucedale anticline, according to electrical logs of oil prospect wells. Undeveloped in the coastal area.

Although water is not derived from the Hattiesburg formation within the area, large supplies are obtained from it at Camp Shelby, Forrest County. The sands and gravelly sands contain a large undeveloped supply along the Wiggins-Lucedale anticline in George, Stone, and Pearl River Counties.

Figure 10.—McCreas Bluff (Locality D, NE. 1/4, NE. 1/4, Sec. 37, T. 3 S., R. 8 W.), on the west bank of the Pascagoula River, George County, exposing the Pascagoula formation overlain with stream terrace deposits.

PASCAGOULA FORMATION

GENERAL FEATURES

The stratigraphic interval above the Hattiesburg formation and below the Graham Ferry is assigned to the Pascagoula formation. The formation underlies the six counties and crops out in the northern parts of Pearl River, Stone, and George Counties. The sediments range in thickness from about 800 feet over the Wiggins-Lucedale anticline to about 1,300 feet in wells along the shore.

The type locality is an exposure of part of an estuarine lens or tongue which is 20 feet thick at Shell Bluff and near-by exposures

along the Chickasawhay River at the northern edge of George County (Locality E, Plate 1). In addition to nondiagnostic foraminifera, a fossil gar, and a crocodile tooth, the following fossils have been described by A. R. Mincher:[16]

Mollusca
- Rangia johnsoni (Dall)
- Ostrea westi Mincher

Ostracoda
- Anomocytheridea pascagoulaensis Mincher
- Anomocytheridea ovata Mincher
- Perissocytheridea matsoni Stephenson
- Cytherura johnsoni Mincher
- Microcythere moresiana (Stephenson)
- Microcythere johnsoni Mincher
- Cytheromorpha pascagoulaensis Mincher

In the subsurface *Rangia johnsoni* is used as a guide, but the ostracoda may prove more useful. Associated with *Rangia johnsoni* are blue and green clay and shale, silt, sandy shale, gray and green sand, gray silty clay, and dark sandy gravel or gravelly sand. Where exposed at McCreas Bluff (Locality D, Figures 10, 11) on the Pascagoula River 1/2 mile upstream from Wilkerson Ferry, George County, the sediments may be described as follows:

SECTION OF MCCREAS BLUFF OR LIVE RIVER BLUFF IN SOUTHWESTERN GEORGE COUNTY. (SOUTHEASTERN CORNER OF IRREGULAR SEC. 41, T. 2 S., R. 8 W.) ALTITUDE OF BLUFF CREST 50 FEET.

	Feet	Feet
Low terrace deposits		12
Sand, gravelly; composed of pebbles and grains of quartz, chalcedony, and chert. Some petrified logs (one palm) are near base	12	
Pascagoula formation		29
Clay, dark-gray; stained yellow from overlying sand	2	
Clay, sandy; weathers yellow; slightly bedded	3	
Clay, dark-gray; weathers by cracking	3	
Clay, sandy light-gray; iron-stained bed near base; massive	11	
Sand, massive and cross-bedded; local lenses of clay conglomerate; gray and blue-gray where unweathered, yellow where weathered. This sand is locally laminated and silty near the top of the exposure at the north end of the bluff where it is 32 feet thick	10	

Most outcrops of the Pascagoula formation are composed of gray-green or gray-blue clay and silty clay, locally sprinkled with

pebbles of quartz and chert and locally containing numerous limonitic tubular concretions of root-like pattern. A good exposure at a bluff in northwestern Pearl River County (Locality A) probably includes some of the Pascagoula (Figure 9).

Figure 11.—Detail at McCreas Bluff (Locality D, NE. 1/4, NE. 1/4, Sec. 37, T. 3 S., R. 8 W.), George County, showing 32 feet of sand locally laminated and silty near the top, dipping north, and capped by 15 feet of terrace sand. This is probably part of the Pascagoula formation.

SECTION OF THE EAST BLUFF OF PEARL RIVER IN NORTHWESTERN CORNER OF PEARL RIVER COUNTY (LOCALITY A, SEC. 5, T. 1 S., R. 17 W.)

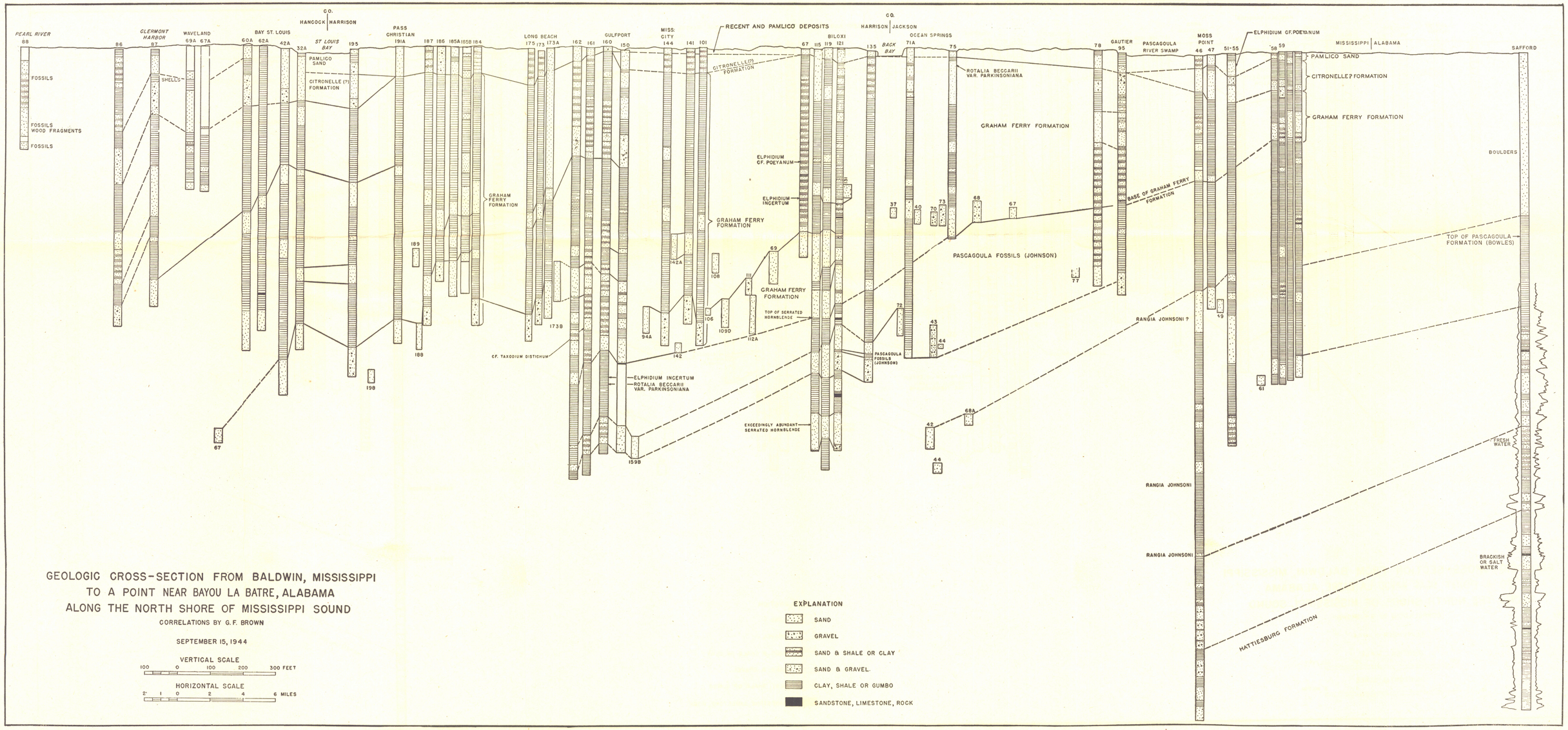
	Feet	Feet
High terrace deposits		91-96
Sand, beautifully cross-bedded; weathers red and yellow; upper 10 feet massive clayey sandy loam; lenses of gravel and scattered quartz and chert pebbles	90	
Conglomerate, iron-cemented; contains pebbles of chert and quartz up to 3 inches in diameter	1 - 6	
Graham Ferry (?) formation		28
Clay; weathers light-gray; grades down into silt and sand	3	
Sand, fine cross-bedded; iron-cemented at base; weathers red and yellow; locally contains pockets of purple clay and silt conglomerate	25	
Pascagoula (?) formation		18-27
Clay and silt, blue-gray and dense	18-27	

Although the Pascagoula is probably mostly of deltaic or estuarine origin, it is somewhat more marine than the formations above and below it.

In the subsurface the mollusk *Rangia johnsoni* Dall has been considered a characteristic fossil of the Pascagoula formation,[17] although H. V. Howe and J. H. McGuirt[18] show that its complete time range has not been established, and M. T. Halbouty[19] places it in his Pliocene section at the Jennings salt dome in Arcadia Parish, Louisiana, and C. J. Maury[20] describes its association here with *Rangia cuneata,* a Quaternary brackish water form. Certainly *Rangia johnsoni* is the most abundant and characteristic form at the type fossil locality of the Pascagoula as given by Johnson[21] ("Shell Landing below Roberts Bluff, 4 miles southwest of Vernal post office," right bank of Chickasawhay River, center of SE. 1/4, Sec. 28, T.1 N., R.7 W., Greene County, Mississippi). Johnson also describes it from a depth of 700 feet in a well at Biloxi and at 735 feet in a well at Mobile, Alabama. It has been reported from the following wells in Jackson County:

46	Seacoast Oil Company, Hibbler No. 1	1,266 - 2,150 feet
17	The Georgia Company, Waterman No. 1	1,295 - 1,302 feet
111	Pascagoula Development Company, Delamorton No. 1	1,300 - 1,700 feet

Mincher[22] states that an ostracode assemblage from cores taken at depths of 4,492 to 4,497 and 4,497 to 4,502 feet in the Cockrell-Moran No. 23 well at the Lake Washington Dome, Plaquemines Parish, Louisiana, was identified by Howe and McGuirt as the same as that he describes from the type locality of the Pascagoula formation in Greene County, Mississippi. Associated in the cores with the ostracoda described and named by Mincher as *Anomocytheridea pascagoulaensis* and *Microcythere johnsoni* are *Rangia* cf. *johnsoni, Paludestrina* sp., *Rotalia beccarii, Elphidium incertum, Robulus* cf. *iotus, Cytheridea choctawhatcheensis,* and *Microcythere moresiana.* The importance of this faunal group lies in its stratigraphic position of "more than 700 feet below the occurrence of *Siphogenerina lamellata,* the species which J. A. Cushman considers an index fossil for the *Arca* zone"[23] (a horizon in the upper middle Miocene of Florida). This tenuous correlation is strengthened somewhat by a faunal group in the Humble Oil Company's No. 1 Dantzler (Jackson County well



GEOLOGIC CROSS-SECTION FROM BALDWIN, MISSISSIPPI
TO A POINT NEAR BAYOU LA BATRE, ALABAMA
ALONG THE NORTH SHORE OF MISSISSIPPI SOUND

CORRELATIONS BY G. F. BROWN

SEPTEMBER 15, 1944

VERTICAL SCALE
100 0 100 200 300 FEET

HORIZONTAL SCALE
2 1 0 2 4 6 MILES

EXPLANATION

- SAND
- GRAVEL
- SAND & SHALE OR CLAY
- SAND & GRAVEL
- CLAY, SHALE OR GUMBO
- SANDSTONE, LIMESTONE, ROCK

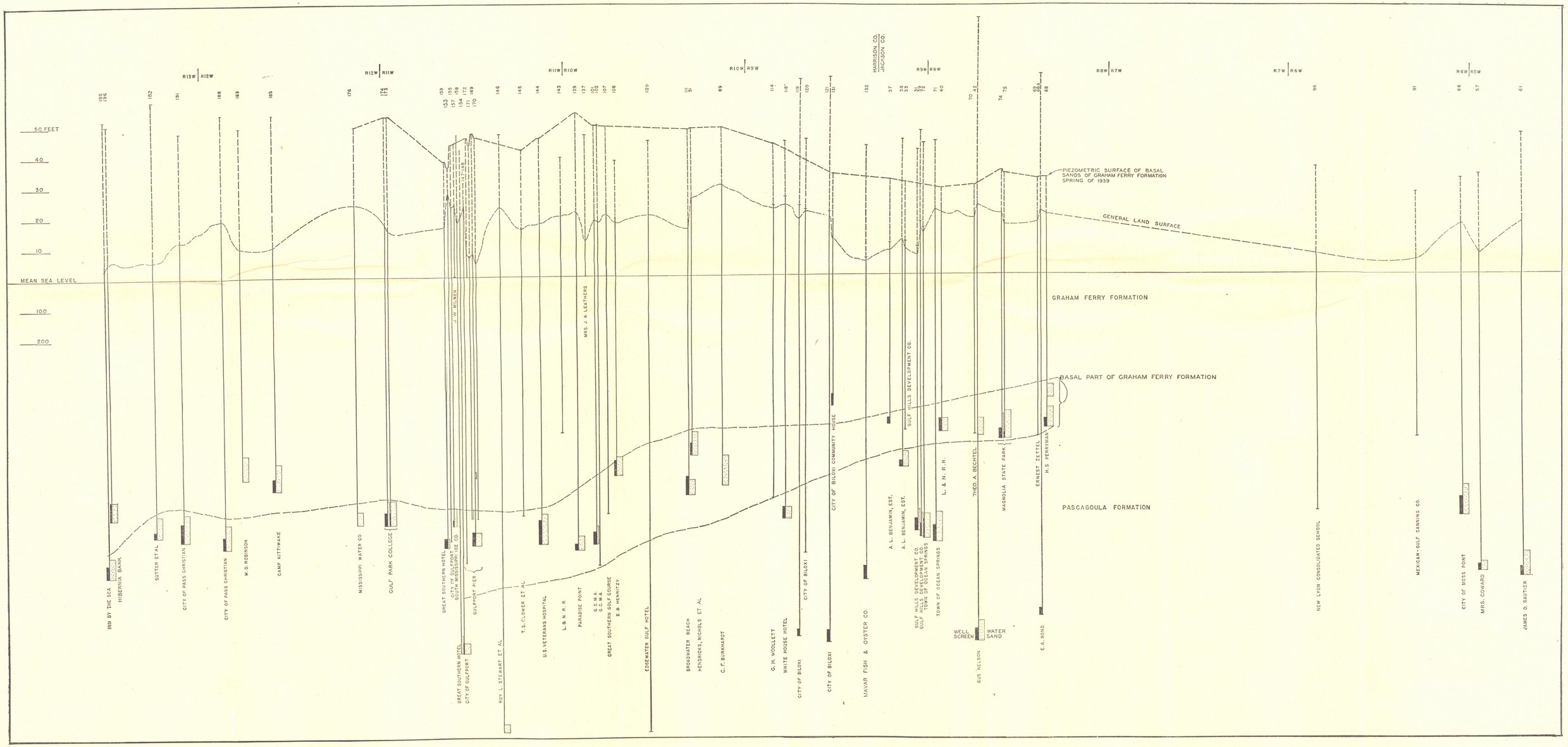
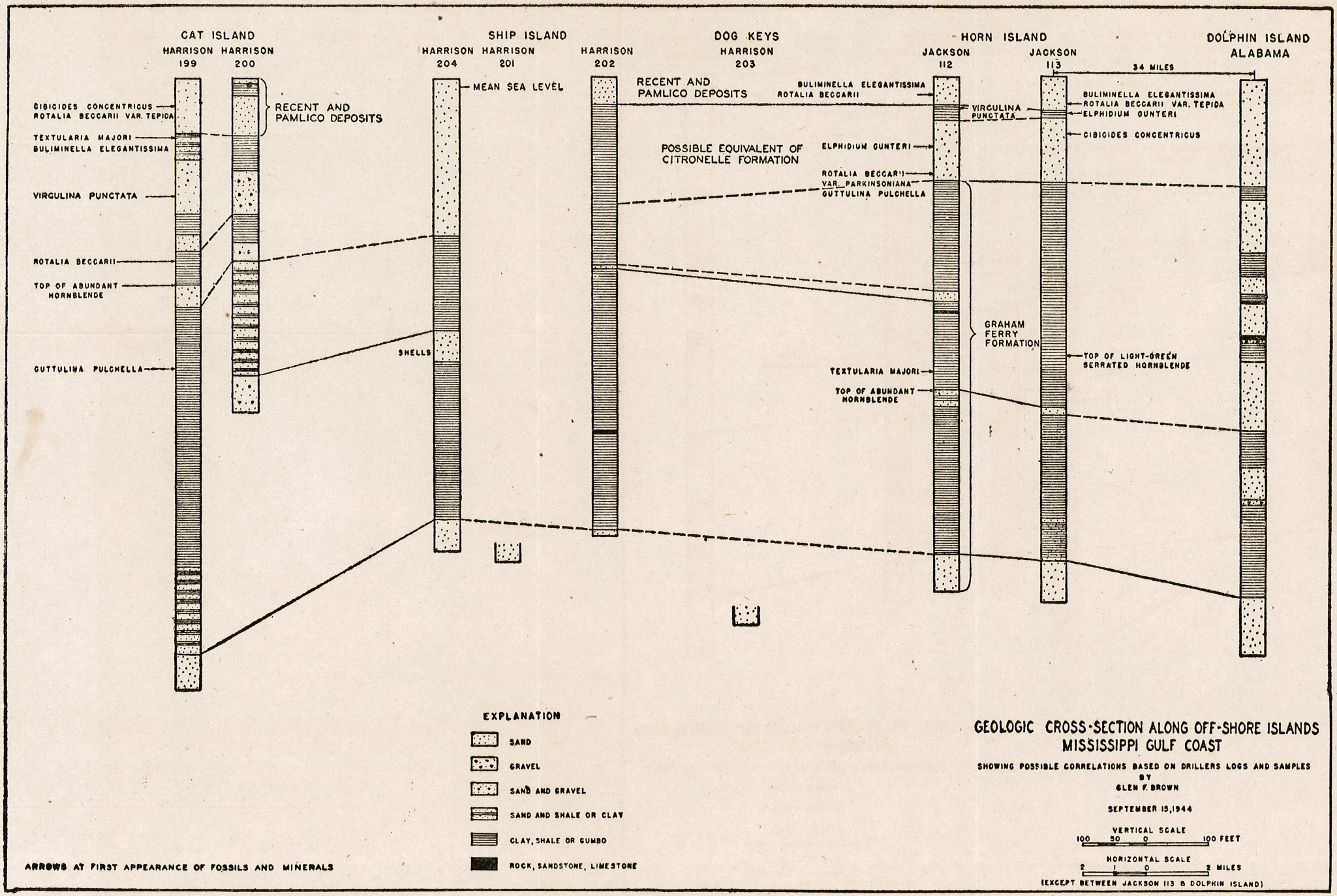


Plate 13.—Cross-section from Pass Christian through Gulfport to Moss Point showing the height to which water would rise in wells in the Graham Ferry and Pascagoula formations in 1939.



EXPLANATION

- SAND
- GRAVEL
- SAND AND GRAVEL
- SAND AND SHALE OR CLAY
- CLAY, SHALE OR GUMBO
- ROCK, SANDSTONE, LIMESTONE

ARROWS AT FIRST APPEARANCE OF FOSSILS AND MINERALS

GEOLOGIC CROSS-SECTION ALONG OFF-SHORE ISLANDS MISSISSIPPI GULF COAST

SHOWING POSSIBLE CORRELATIONS BASED ON DRILLERS LOGS AND SAMPLES

BY

GLEN F. BROWN

SEPTEMBER 15, 1944

VERTICAL SCALE
100 50 0 100 FEET

HORIZONTAL SCALE
2 1 0 2 MILES
(EXCEPT BETWEEN JACKSON 113 & DOLPHIN ISLAND)

4, Sec. 20, T. 5 S., R. 8 W., 29 miles south of the Shell Landing locality) which includes *Rotalia beccarii, Eponidella cushmani, Microcythere johnsoni* and *Rangia johnsoni* in cuttings from a depth of 929 to 959 feet. *Rangia johnsoni* is also somewhat questionably identified in cuttings to a depth of 1,600 feet. Still farther south, *Rangia johnsoni* has been found from 1,266 to 2,150 feet, indicating a dip that is supported by the correlation of the sand and gravel horizons.

Accordingly, beds wherein *Rangia johnsoni* have been reported are here included in the Pascagoula formation and assigned to the middle Miocene.

HYDROLOGY

About 40 percent of the artesian wells in the coastal area derive water from the sands and gravels of the Pascagoula formation. These artesian wells are located in Jackson, George, Stone, eastern Harrison, and northeastern Pearl River Counties, where the sands and gravels are shallow enough to be reached easily by the drill and where they do not as a rule contain brackish water. Most of the wells are concentrated along the coast in Jackson County and in eastern Harrison County (Tables 13-18), where two aquifers, 1,065-1,300 and 800-965 feet, in the Pascagoula have been developed. A sand at a depth of 1,114 to 1,279 feet at Gulfport is somewhat questionably correlated with the shallower sand of the Pascagoula formation. The deeper of the two sands has been little used, probably because wells are costlier and because the water contains appreciable quantities of dissolved salts, especially in the eastern part of Jackson County (Table 8). Natural pressure is sufficient to raise the water about 100 feet above mean sea level and has remained nearly constant since 1912. The shallower sand, on the contrary, has been extensively developed. Consequently, its pressures have decreased so the water has declined approximately from 100 feet above mean sea level to 50 feet in the western part of Jackson County and in eastern Harrison County (locally more than this in the vicinity of Biloxi); approximately from 50 feet above sea level to 30 feet in eastern Jackson County at Moss Point; and approximately from 65 to 15 feet at Gulfport since 1911. Elsewhere no important decline has been determined. The chloride content of water, which is a measure of connate and of sea-water intrusion, increases with depth in the Pascagoula formation. In a sand at 1,800 feet at Moss Point

the chloride content is 2,260 parts per million. In Jackson County water from the 1,065-1,300 aquifer contains sufficient chloride to be objectionable. Some seasonal fluctuation of chloride content seems to be due to subsurface leakage from faulty wells without casings or wells with rusted-out casings.[24] The sand in the upper part of the Pascagoula formation locally yields water containing appreciable

Figure 12.—Rice Bluff (Locality Q, NW. 1/4, NW. 1/4, Sec. 38, T. 5 S., R. 7 W.), Jackson County, one of the type sections for the Graham Ferry formation. Fossil casts were obtained from the hole on the right in the topmost bed.

amounts of the chloride ion, which likewise may be due to local subsurface leakage (Table 11). The large supplies from the "1,200-foot sand" at Gulfport, probably the 800-965 sand, contain negligible amounts of chloride (Table 12).

PLIOCENE AND PLEISTOCENE SERIES

GRAHAM FERRY FORMATION

GENERAL FEATURES

The name Graham Ferry formation is given to a series of deltaic sediments above the Pascagoula formation and below the Citronelle formation. The stratigraphic relationship to the overlying Citronelle

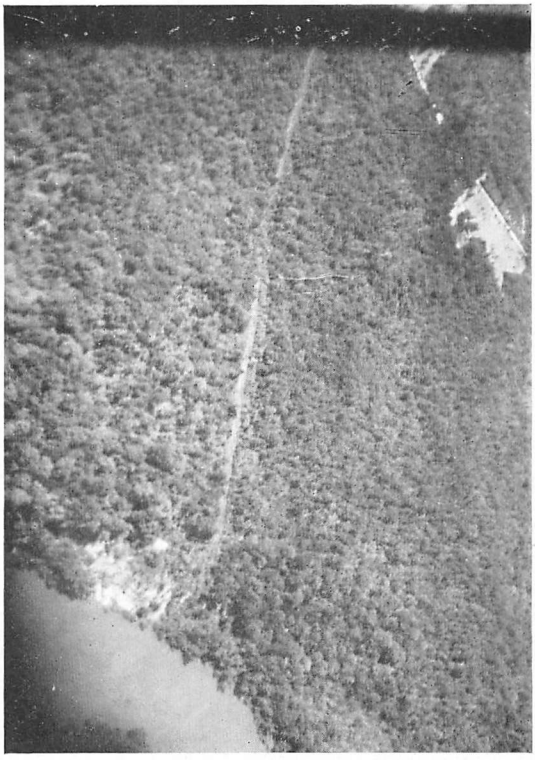


Figure 13.—Type section of Graham Ferry formation exposed in bluff beneath power line, west bank Pascagoula River (Locality R, near center of irregular Sec. 38, T. 5 S., R. 7 W.), Jackson County. View toward northwest from an altitude of 1,500 feet.

is disconformable, the relationship to the underlying Pascagoula not clear; but the unit includes beds that contain fossils of both Pliocene and Pleistocene age, according to Julia Gardner of the U. S. Geological Survey. Exposures extend north from the coastal pine meadows into the hills of southern Stone County and into a

large part of Pearl River County, an area bounded on the northeast by Red Creek but not sufficiently distinctive to be separated from the Pascagoula terrain. The Graham Ferry formation ranges in thickness from 113 feet in eastern Jackson County to 975 feet at Gulfport. Doubtless the formation is much thicker farther west, but wells have not penetrated the entire thickness. The sediments of the Graham Ferry are heterogeneous and, like most deltaic formations, include both continental and marine beds. Continental and brackish water deposits predominate, although the type locality (Figures 12, 13) contains numerous marine fossils. Silty clay and shale, sand, silty sand, and gravelly sand are included. Most exposures of clay and shale, as well as argillaceous sand, contain carbonaceous fragments of plants, in several places associated with casts of mollusks, particularly *Barnea Costata,* and *Chione* sp. Two instructive exposures on the west bank of Pascagoula River in Jackson County are 1 mile apart and contain the same fossil bed near the top. The northern of these is locally known as Rice Bluff and is 1 mile downstream from White's Camp (Figure 12).

SECTION AT RICE BLUFF, 1 MILE BELOW WHITES CAMP, WEST BANK OF PASCAGOULA RIVER (LOCALITY Q, NW. 1/4, NW. 1/4, IRREGULAR SEC. 38, T. 5 S., R. 7 W.), JACKSON COUNTY.

	Feet	Feet
Citronelle (?) formation		60
Sand, gravelly loose gray and tan; rises back from the cliff face	60	
Graham Ferry formation		51
Clay, dark carbonaceous; contains plant fragments; grades down into fine sand	5	
Sand, fine; much is leached but contains concretions and fossil casts in the upper part; *Pecten (Plagioctenium), Irradians lamarck?,* and numerous other bivalves	8	
Shale, carbonaceous silty; dark-gray fine sand; grades into large cross-bedding	8	
Sand, gray silty; a vertical face	5	
Sand, interbedded with laminated silts and clays; contains numerous magnetite grains and weathers gray and tan. Clay is dark-gray and unweathered	19	
Clay, massive gray, blue-gray; unweathered	6	

A mile farther downstream another section is exposed, where an elevated power line crosses Pascagoula River (Figure 13).

SECTION OF WEST BANK OF PASCAGOULA RIVER AT THE POWER LINE (LOCALITY R, NEAR CENTER OF IRREGULAR SEC. 38, T. 5 S., R. 7 W.), JACKSON COUNTY.

	Feet	Feet
Citronelle (?) formation		25.0
Sand, quartz and chert; seep springs at base	25.0	
Graham Ferry formation		19.0
Clay, gray and blue-gray; sluffs down the slope	5.0	
Sand, gray fine much leached; contains casts and molds of *Pecten (Plagioctenium)*, *Irradians lamarck?*, *Pecten* sp., *Chione* sp., and other fossils	4.5	
Silt, clayey; weathers brown and yellow with circular and elliptical markings	3.5	
Sand, fine, and interbedded clay	2.0	
Clay, steel blue massive	4.0	
Landslip of clay and silt		19.8
Covered	4.3	
Clay and silt from above	12.5	
Covered; flat at flood plain	3.0	

Altitude of base of section 15 feet.

Midway between the two bluffs is an old river crossing locally known as Graham Ferry, the name used here for the clays, silts, and sands above the Pascagoula formation and below the terrace deposits.

A mile still farther south on the west bank of Pascagoula River (Locality R_1) 18 feet of medium sand somewhat coarser at the base overlies the blue clay and strikes northwest into it. The sand, which is cross-bedded and has a salt-and-pepper appearance, is probably an updip extension of one of the sands of the Graham Ferry formation which yields water copiously along the coast.

In Harrison County the Graham Ferry deposits may also be seen along the channel of Tchoutacabouffa River north of Biloxi. The sandy clay in the stream bed 5 miles north of Biloxi (Locality O, SE. 1/4, SE. 1/4, Sec. 33, T. 5 S., R. 9 W.) contains leaf fragments, molds of *Barnea costata* (Linnaeus), *Chione* sp., and other pelecypods. At a bridge across Saucier Creek (Locality N, SE. 1/4, SW. 1/4, Sec. 16, T. 5 S., R. 11 W.), 3 miles southeast of Saucier, molds of *Barnea costata, Chione* sp., *Corbula* sp., other pelycypods and a fish tooth were collected from 12 feet of clay of the Graham Ferry formation. Like the Tchoutacabouffa River, the Wolf River in western Harrison and eastern Hancock Counties flows over the Graham Ferry formation, but more than a few feet of the clays, clayey sands,

and silty sands are seldom exposed. One locality (K, NW. 1/4, SE. 1/4, Sec. 5, T. 6 S., R. 13 W., Harrison County) contains numerous leaves and *Barnea costata.*

Farther west in Harrison County clays and silts of the Graham Ferry formation are exposed along the stream beds and lower banks as at Big Biloxi Creek on U. S. Highway 49, 14 miles north of Gulfport.

SECTION AT BIG BILOXI BRIDGE ON U. S. HIGHWAY 49 (LOCALITY M, SE. 1/4, SE. 1/4, SEC. 31, T. 5 S., R. 11 W.), HARRISON COUNTY.

	Feet	Feet
Citronelle (?) formation		11-35
Sand, gravelly red-brown; cross-bedded to the south	3-10	
Clay and sand, mottled gray, tan, and purple; seemingly a weathered and reworked zone of the top of the Graham Ferry formation	8-25	
Graham Ferry formation		47
Clay and silt, gray and massive; contains scattered grains of quartz sand	40	
Shale and minor sand, interbedded blue and blue-gray; the shale contains plant fragments and molds of two pelecypods; 1/2 mile upstream at Big Biloxi Park, these beds are darker well-bedded and carbonaceous. Small crystals of gypsum are common on the bedding planes	7	

In Hancock County the Graham Ferry formation, exposed in the vicinity of Kiln, is gray somewhat silty clay and minor fine gray sand. Along Bell Creek in the northeastern part of the county, and in the lower part of the formation, fetid black shale and silt, containing a few thin lenses (1 or 2 inches thick) of fine gray sand and numerous plant fragments and worm borings, grade upward into blue-gray clay and silty sand (Figure 14). About 50 feet of Graham Ferry strata are exposed above the stream bed and along the secondary road south of Sellers School (Locality J, NE. 1/4, SW. 1/4, Sec. 25, T. 5 S., R. 14 W.), Hancock County.

In Pearl River County bedded silty clays and sands are more common, although clay is predominant. Along the county road 2 miles south of Strahans Corner in the western part of the county (Locality I, SW. 1/4, Sec. 26, T. 3 S., R. 18 W.), the apparent dip on bedded silt is 15° south. At this place noncalcareous fucoid-like concretions are numerous. Sand considered to belong to the Graham Ferry formation is exposed in a bluff above Pearl River at the northwestern corner of the county.

Of the 39 species, identified by Cushman, of foraminifera from wells in the coastal area (Table 2) all are from the Graham Ferry formation except possibly those from below 1,000 feet in Harrison County well 160 and from below 790 feet in Jackson County well 62; 15 are common both to the Caloosahatchee marl (Pliocene of Florida) and Recent West Indian faunas.[25] Also included are 5 species which W. S. Cole describes from Pleistocene and Pliocene deposits in

Figure 14.—Nonmarine shale and silt of the Graham Ferry formation in the bank of Bell Creek (Locality J, NE. 1/4, SW. 1/4, Sec. 25, T. 5 S., R. 14 W.), Hancock County.

Florida; namely, *Elphidium poeyanum, Rotalia beccarii* var. *parkinsoniana, Discorbis floridana* (very rare at one Florida locality), *Quinqueloculina lamarckiana,* and *Angulogerina occidentalis.* Howe and R. O. Vernon[26] have listed 16 species of foraminifera from Holmes and Washington Counties, Florida, which are given here and which are assigned to the Choctawhatchee (upper and middle Miocene) and the Alum Bluff (middle and lower Miocene) by Vernon. These species are *Angulogerina occidentalis, Asterigerina carinata, Buliminella curta, Buliminella elegantissima, Cibicides concentricus, Discorbis floridana, Elphidium advenum, Elphidium incertum, Elphidium*

TABLE 2

FORAMINIFERA FROM WELL CUTTINGS IN HARRISON AND JACKSON COUNTIES AND NEARBY ISLANDS
DEPTH INTERVALS OF SAMPLES CONTAINING FOSSILS IN FEET BELOW WELL COLLARS

LOCATION OR OWNER COUNTY WELL NUMBER	Cat Island Harrison 199	U. S. Naval Depot 2 Harrison 161	Biloxi Harrison 115	Lamey Jackson 14	Magnolia Park Jackson 75	Moss Point Jackson 62	Pascagoula Jackson 107	Horn Island Jackson 112	Horn Island Jackson 113
Angulogerina occidentalis								47– 69	44– 68
Asterigerina carinata								47– 90	
Bolivina pulchella var. primitiva								24– 90	23– 44
Bolivina rhomboidalis								47– 69	
Bolivina sp.	42–638				70– 80				
Buliminella cf. curta	638–661								
Buliminella curta	117–752								
Buliminella elegantissima	93–706		900– 920		90–140			24– 90	44–422
Cibicides americanus	117–417		540– 700						
Cibicides concentricus	42–661		20– 860		60–230				90–665
Cibicides cf. pseudoungerianus	136–160								
Cibicides pseudoungerianus			540– 560						
Discorbis floridana								47– 69	
Discorbis sp.					40– 50				
Elphidium advenum			160– 440						
Elphidium cf. gunteri			320– 400						
Elphidium cf. poeyanum	685–706		340–1040			36– 87			
Elphidium gunteri								111–289	55– 65
Elphidium gunteri var. galvestonense	42–136				80–130				
Elphidium incertum		1006–1288	460–1040					111–301	
Elphidium incertum var. mexicana?	266–460		160– 180		40–150				
Elphidium poeyanum			20– 580						
Elphidium sp.	616–861	567–1288	20–1225	130– 240	30–440		382–408		
Entosolenia orbignyana							282–292		
Eponides sp.	638–661								
Globigerina bulloides	731–752				80– 90				
Guttulina pulchella	460–482							154–644	
Guttulina sp.	436–460								
Gyroidina sp.					220–230				
Loxostomum mayori?									641–663
Massilina sp.			800– 820						
Nonion depressula var. matagordana	42–200								
Nonionella auris								24– 47	
Nonionella sp.	222–706								
Quinqueloculina costata	222–244								
Quinqueloculina cf. lamarckiana	93–117		360– 380						
Quinqueloculina lamarckiana	222–752		100– 140						
Quinqueloculina seminula			160– 520						
Quinqueloculina sp.	68–661		60– 900						
Reussella spinulosa var.								47– 69	
Rotalia beccarii	288–661		120– 480					24– 90	
Rotalia beccarii var. parkinsoniana		1028–1288	200–1120	130–1094	40–370	36–790		154–754	
Rotalia beccarii var. tepida	42–136				50–150				44–775
Rotalia? Rotalia sp.		567– 590	280– 300		520–530				
Textularia gramen			460–1060	180– 240					
Textularia mayori	93–117		1020–1040					466–754	
Triloculina linneiana var. caloosahatcheensis?			320– 340						
Triloculina oblonga	244–638								
Virgulina punctata	182–752							47– 69	
Virgulina sp.	93–117								

poeyanum, Quinqueloculina costata, Quinqueloculina lamarckiana, Quinqueloculina seminula, Rotalia beccarii var. *tepida, Textularia gramen, Textularia mayori,* and *Triloculina oblonga.* Cole[27] lists seven of these species, among others, from a water well at Port St. Joe, Gulf County, Florida, within the depth interval 130 to 145 feet and assigns the interval to the Pliocene.

The species of foraminifera found in wells along the coast of Mississippi Sound and on the islands (Table 2) range in age from Miocene to Recent. Apparently none are diagnostic of any epoch. The same species of foraminifera which R. C. Bridges[28] assigned to the Pleistocene and which came from a brackish and marine fauna in wells in Livingston Parish, Louisiana, are also present in the samples from south Mississippi. Publication of specific determinations of other fossils from Bridges' samples would be especially valuable in view of the recent tendency of some authors working in Louisiana to describe all deposits above the Miocene as of Quaternary age[29, 30], although Howe and McGuirt[31] have been more cautious in describing a "deep-water fauna" within the Mississippi delta and from the depth interval 1,030 to 1,074 feet in Humble Oil Company's Cockrell-Moran No. 11 well (T. 20 S., R. 26 E., Lake Washington Dome, Plaquemines Parish, Louisiana), as Pleistocene or Pliocene, leaving as a possibility that it may be an off-shore assemblage of "some horizon which carries littoral foraminifera in areas farther north." Their list of 61 species from this well includes 10 of those given here from south Mississippi.

Miss Gardner briefly examined mollusks from cuttings in wells drilled to 819 and 836 feet on Horn Island and writes as follows:

"The species that I have been able to determine are Pleistocene or Recent forms. Many, though I think not all of them, have been recognized in Pliocene faunas. *Rangia johnsoni* is uncommonly well characterized, and I think I should have caught it, if it were present. The Pliocene to Recent *Rangia cuneata* is present in a number of samples."

Cushman comments on the foraminifera from cuttings at the Gulfport U. S. Naval Depot 2 (Table 2) as follows:

"The specimens are few and not too well preserved and . . . have only two species, *Elphidium incertum* which occurs in a number of

samples, and *Rotalia beccarii* var. *parkinsoniana,* in all samples from 1,028 to 1,288 feet. Cole gives the latter as common in the Pliocene of Florida and rare in the Pleistocene. *Elphidium incertum* is given as abundant in the Pleistocene and common in the Pliocene."

The presence of the hornblende assemblage of W. M. Cogen[32] in many of the deeper cuttings is probably not diagnostic, but he shows the hornblende zone above the top of the Miocene in the Continental Oil Company et al O. C. Hebert No. 1, Vermilion Parish, Louisiana, and through 2,550 feet of Pliocene in the Shell Petroleum Corporation's B. C. Hebert et al No. 1, Vermilion Parish, Louisiana. He states further that R. D. Russell's[33] description of the heavy-mineral assemblage carried by the Mississippi River closely resembles the subsurface hornblende assemblage, and the heavy-mineral assemblage from Recent deltaic sediments in St. Bernard and Plaquemines Parishes contains significant quantities of hornblende as well as all the other minerals of Cogen's hornblende zone.[34]

Thus, it would appear that the base of the hornblende zone might have correlative value but not the top—unless there is a non-hornblende zone somewhere beneath the subdeltas described by C. F. Dohm and above Cogen's zone. The cursory examination of rotary cuttings from the Mississippi coastal area did not show such a break, but much more work needs to be done.

HYDROLOGY

More than one half the artesian wells on the coastal area derive water from the coarser clastic beds of the Graham Ferry formation, especially from the basal sands and gravels. This aquifer of sands and gravels has produced more water than any other, and has borne the brunt of increased pumpage for war needs. In 1939 the natural pressure of the basal Graham Ferry raised water in wells a measured maximum of 70 feet above mean sea level at Bay St. Louis, 58 feet at Pass Christian, and 48 feet in western Biloxi, a gradient to the east except around Gulfport, where a local depression reversed the slope. In Biloxi, the piezometric surface declined approximately from 48 feet to 33 feet and toward the east continued downward to 20 feet below sea level at Moss Point. At the present time it stands 49 feet above the sea level on Horn Island. Thus an average overall gradient to the east of 1 3/4 feet per mile is suggested, accompanied by little movement of the water in a southeasterly direction along a

line from Pass Christian to Horn Island. Along a line north through Gulfport the piezometric surface was approximately 20 feet at Cat Island and 58 feet near Lyman, a gradient of 2 feet per mile to the south. The altitude of the recharge area suggests that the initial shape of the piezometric surface was in general similar to its present shape, except for a present general decline of 20 to 30 feet in the areas of greatest production along the beach. Local cones of depression resulting from heavy pumpage have exceeded these figures, and the extension of the cones at the present (1944) rate of pumping will doubtlessly cause more widespread lowering.

The general magnitude of the coefficients of transmissibility and storage of the aquifer at Keesler Field, Biloxi, was determined by computations based on water-level measurements and pumpage data.

Calculations from the recovery of water level in three of the wells at Keesler Field indicate a coefficient of transmissibility of about 22,000 gallons per day per foot—coefficient of transmissibility being defined as the volume of water that will move in unit time through a vertical strip of the aquifer of unit width under a hydraulic gradient of 100 percent; and further calculations indicate a coefficient of storage of approximately 0.006—coefficient of storage being defined as the volume of water discharged from each vertical prism of the aquifer of unit cross-sectional area as the water level falls one unit of distance. The coefficient of transmissibility is considerably lower than the average value of the coefficient determined at Camp Shelby[35, 36] and Camp Van Dorn. This condition may be explained in part by the fact that the sand beds at both Camp Shelby and Camp Van Dorn are thicker than those developed at Keesler Field and in part by the fact that the sands from Camp Shelby and Camp Van Dorn are more permeable than those of the Graham Ferry formation near Keesler Field as determined in the laboratory.

No sand or gravel is found at the surface at a place where a reasonable upward projection of the dip of the basal sands of the Graham Ferry formation would indicate they should outcrop. Thus it would appear that at most places these sands feather out updip and are overlapped by younger beds of shale or clay. However at some places recharge may take place by percolation downward through more recent sand or gravel which fills channels cut through

the clays overlying the Graham Ferry aquifer, or by means of some other hydrologic connection with meteoritic waters which remain as yet undiscovered.

Regardless of the fact that from early spring 1943 to early spring 1944 approximately a billion gallons of water had been removed from the basal sands of the Graham Ferry formation by the Keesler Field pumps alone, water levels in the wells during periods of like pumping rates were comparable.

Additional investigations are needed to determine the ultimate yield of this aquifer, to calculate the coefficients of transmissibility and storage at more locations in the area, and, finally, to evaluate "boundary conditions" such as the maximum rate at which water is available for recharge from sources outside the aquifer. These factors are not constant as even a cursory examination of the geology will show. The solution of these problems will depend on pumping tests at numerous points, on test drilling, on more intensive studies of the recharge areas, and on a mathematical treatment commensurate with the geological conditions.

PLEISTOCENE SERIES

CITRONELLE FORMATION

GENERAL FEATURES

The sand, sandy gravel, gravel, clay, and clayey gravel of the Citronelle formation cap several ridges in the long leaf pine hills and are the oldest recognizable terrace deposit in the area. The ridges have a radiating pattern fanning out from the northwest, an outline suggesting that the formation is erosion remnants of distributary channel deposits of some great Pleistocene stream. The beveled clays and silts of the Pascagoula and Graham Ferry formations on which the Citronelle disconformably rests are crudely benched at altitudes of 190 to 210 feet and 250 to 270 feet in Pearl River, Stone, and George Counties, and in the extreme northern portions of Hancock, Harrison, and Jackson Counties. Farther south in the coastal portion fingers of sand and gravel of the Citronelle formation continue down beneath younger sediments, where they have been reworked in part and locally, as east of the Pascagoula, entirely eroded and redeposited into lower and younger formations. Gravels encountered in wells along the coast in southern Hancock County are assigned to the

Citronelle; and between Gulfport and Biloxi, Harrison County, and in the vicinity of Pascagoula, Jackson County, somewhat questionably so.

The thickness of the Citronelle formation ranges from a thin mantle to a known maximum of about 160 feet. On the ridge crests

Figure 15.—Big Biloxi Creek flowing across clay of the Graham Ferry formation where conditions are not favorable for recharge to the artesian sands (Locality L, SE. 1/4, NW. 1/4, Sec. 22, T. 5 S., R. 12 W.), Harrison County.

maximum thickness is about 100 feet, but in southwestern Hancock County the buried extension reaches the larger figure and may exceed it.

Perhaps the most typical feature of the Citronelle formation is the brick-red sand forming the cores of ridge crests and extending down to altitudes as low as 50 feet on the projections of the ridges. The sand is highly oxidized, usually massive and sprinkled with coarse grains of milky quartz and brown chert. The well-drained uplands of the Citronelle support a typical oxidized sandy loam series, locally silty where original depressions and subsurface drainage have caused accumulation of fine material. According to C. F. Marbut,[37] these soils are like the sandy soils of the Atlantic coastal plain south of North Carolina, except that much more fine and very fine sand

is present. Much of the upper sandy part assigned to the Citronelle seems to be wind-blown, and, although younger than the Citronelle, it is mapped with it as part of the lithologic unit. The blow-outs and active dune areas can be separated, however. Gravel, both

Figure 16.—Gravel of the Citronelle formation resting on weathered clay of the Graham Ferry or the Pascagoula formation at an elevation of 273 feet (Locality G, NE. 1/4, NE. 1/4, Sec. 26, T. 2 S., R. 15 W.), Pearl River County.

sandy and clayey, is common in the lower part of the formation (Figure 16); the walls of numerous road-metal pits expose large-scale fluvial cross-bedding in the coarse clastic material and in local thin beds of gray clay. Pockets and stringers of clay extend throughout the lower gravelly portion. The gravel is mostly brown chert and quartz so common on the upland throughout Mississippi.

HYDROLOGY

Numerous small farm wells and springs in the long leaf pine hills derive water from the Citronelle formation which is perennially saturated in the lower few feet. Its limited distribution prevents large development along the coast although transmissibility is high where the gravel beds extend below the coastal meadows. Some of the early wells in Hancock County derived water from the Citronelle

under natural pressure of about 20 feet above the land, but subjacent greater pressures early led to deeper drilling. An attempt to produce 500 gallons a minute from gravel above a depth of 155 feet at Moss Point, Jackson County, in 1927 resulted in salt-water encroachment and the well had to be abandoned. Conditions would seem somewhat more favorable in Hancock County, because of greater fresh-water pressure but intensive pumping would, by analogy, eventually cause salt-water encroachment. Water in the Citronelle is more important in the hinterland because it serves as an auxiliary reservoir for the underlying formations and probably contributes pressure to the flowing wells along the coast which derive water from the Graham Ferry and Pascagoula formations.

HIGH TERRACE DEPOSITS

Alluvial deposits which can be mapped separately from the Citronelle formation are shown on the geologic map in the vicinity of Pearl and Pascagoula Rivers. These local deposits are younger than the Citronelle, being reworked sand and gravel largely derived from the older formation which they resemble lithologically. The estimated maximum thickness near the Pearl River is 100 feet; east of the Pascagoula River, 50 feet. An average thickness noted in wells east of the Pascagoula River, where the material splays out to the southeast, is about 30 feet. The High terrace deposits differ from the Citronelle in that the chert pebbles seem less abundant and the quartz more abundant, and in that they are less indurated, although the basal portion is cemented at Locality A (Figure 17). Small supplies of water for farm and domestic purposes are obtained from the High terrace deposits. However, the limited area covered by them, together with their elevated position which facilitates natural drainage, reduces their importance as ground-water reservoirs.

LOW TERRACE DEPOSITS

The Low terrace deposits, younger than the High terrace deposits, include lower stream alluvium east of the Pascagoula River as well as a strip of deposits comprising beach ridges which extend across the area west of the Pascagoula River. The deposits are thin; a thickness of 20 feet in the Pascagoula strath area is maximum along distributary ridges or natural levees, but most of this strath area is underlain by 6 feet or less of Low terrace alluvium. The belt

of Low terrace deposits west of the Pascagoula River is somewhat thicker, probably averaging 15 feet. The Low terrace deposits are mostly sand (Figure 18). Where the water table is high and swampy organic debris is present, the sand is gray; elsewhere it is tan or yellow. Locally the deposits contain pebbles and grains of quartz

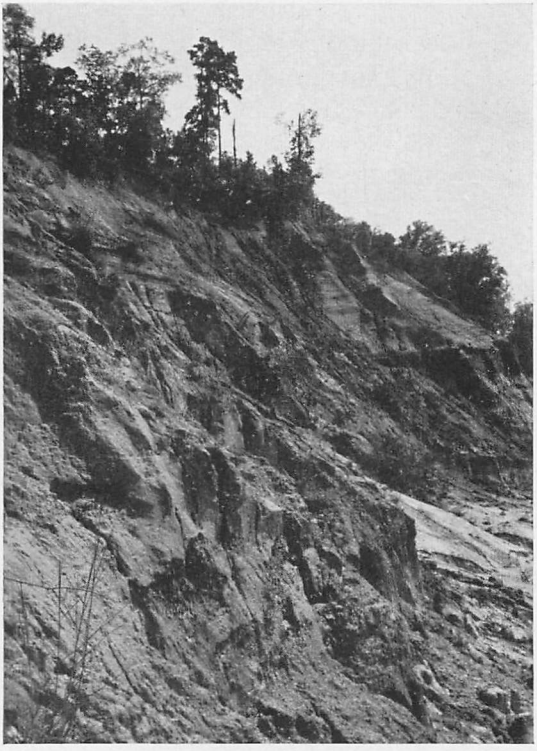


Figure 17.—Ninety feet of sand of the High terrace deposits (Locality A, SW. 1/4, Sec 5, T. 1 S., R. 17 W.), northwestern corner of Pearl River County.

and brown chert. Along the lower elge of the outcrops west of Pascagoula River the tan sand is locally consolidated into a friable sandstone and in Hancock County the outcrops are gray mottled clay and sand.

A few small wells derive water from the Low terrace deposits under water-table conditions. The sands will transmit water, but the small areal extent and thinness of the deposits show that large quantities of water are not present.

A section of Low terrace deposits is exposed on the south bank of Red Creek at Red Bluff.

Figure 18.—Massive sand of the Low terrace deposits beneath sandy loam exposed on west bank of the Pascagoula River. The bluff is 24 feet high, composed of white sand in the lower 8 feet that grades up into clay and 10 feet of weathered clayey brown sand beneath the tree (Locality T, West center Sec. 3, T. 7 S., R. 6 W.), Jackson County.

SECTION AT RED BLUFF (LOCALITY P, SE. 1/4, SE. 1/4, SEC. 16, T. 4 S., R. 7 W.), JACKSON COUNTY. ALTITUDE AT TOP OF BLUFF 46 FEET.

	Feet	Feet
Low terrace deposits		30
Sand, clayey and sandy loam, weathers brown in a vertical face;		
Indian potsherds near top	10	
Sand, laminated white; yellow and gray-yellow clayey sand	8	
Sand, fine white; somewhat coarser near the base	12	

PAMLICO SAND

The Pamlico sand underlies the Pamlico plain (coastal pine meadows) along the north shore of the Mississippi Sound. Much of the outer edge of the Pamlico sand is capped by Recent beach and dune deposits from which it cannot readily be separated, and the formation, as mapped, also includes fluvial deposits of Pearl and Pascagoula Rivers near their mouths which merge with the marine deposits along the shore.

The Pamlico surface is well marked across the State, and many beach features are preserved. North of Biloxi mollusk-bored pebbles from an elevated beach at a height of 42 feet (Figure 3) may have been deposited when the sea stood at the Penholoway level, or they may have been cast up by the Pamlico sea which left fossiliferous marine deposits. Douglas Johnson gives 20 feet as the maximum height at which beach ridges might be formed above the sea. A somewhat smaller height might be expected along the Gulf Coast where tides are small and off-shore depths are shallow, until it is recalled that the area is lashed by hurricanes, which could leave a ridge at a height considerably above the littoral.

H. G. Richards[38] cites the U. S. Geological Survey for the authority that Pleistocene fossils have been found at depths of 30 and 50 feet midway between Gulfport and Biloxi, Harrison County, at 30 to 64 feet at Long Beach west of Gulfport, Harrison County, and at 70 to 95 feet at Waveland, Hancock County, depth intervals within the Pamlico sediments.

The thickness of the marine and estuarine deposits is small and variable—1 to 75 feet, according to correlations on drillers' logs. Most of the material is gray and tan sand, although clay and silt, resulting from lagoonal depositions, are exposed in the northern and lower portions of the Pamlico plain, as well as some beach shingle in the seaward portion.

A good exposure is on the southeast bank of the Wolf River (Locality X, NE. 1/4, NE. 1/4, Sec. 5, T. 8 S., R. 12 W.), Harrison County, 3 miles north of the Pass Christian-Long Beach boundary.

SECTION OF THE SOUTHEAST BANK OF WOLF RIVER. ALTITUDE AT TOP OF THE BANK 25 FEET.

	Feet	Feet
Pamlico sand		15
Sand and weathered chert pebbles; grades upward into sandy loam	3	
Clay, lenticularly bedded gray	2	
Sand, yellow clayey; contains pebbles of weathered chert	10	

Some small water wells back from the shore have been dug into the Pamlico sediments, but the porous and unconsolidated sands have furnished a reservoir for sewage in the thickly populated areas, thus permitting pollution of the water of the Pamlico until it is unwholesome and locally dangerous for domestic use. However, much water for industrial uses such as air-conditioning could with care be pumped from the Pamlico. The temperature of the water from the Pamlico sand is uniformly about 70 degrees Fahrenheit throughout the year. Such water would probably become increasingly salty, especially if withdrawn in large amounts near the tidal bays.

ALLUVIUM

Gorges cut by the trunk streams, Pearl, Pascagoula, and Escatawpa, presumably during the last or Wisconsin glacial epoch, have been filling up since the close of the epoch. The bulk of the lower part of the alluvium is sand and gravel, similar to contemporaneous deposits along the Mississippi River. At the present time clay and silt are accumulating on the overflow portions of the Pascagoula valley; and much organic debris, including sawdust, is accumulating along the tidal marshes. Exposures of sand bars and levees along the banks of the Pascagoula River in George County show gray fetid and sticky clay, locally layered with partly decayed roots and twigs. Sand and gravel are abundant in the alluvium of Red Creek, Wolf River, and Pearl River, as well as along many smaller tributaries. Along Red Creek, whose course has been much alluviated compared to Black Creek, sand and gravel banks contain pebbles as large as two inches across composed of white, gray, tan, and black chert and bull quartz. One exposure in eastern Stone County is along Red Creek.

SECTION AT RED CREEK (LOCALITY C, NW. 1/4, NW. 1/4, SEC. 26, T. 3 S., R. 10 W.) ALTITUDE AT TOP OF THE BANK 114 FEET.

	Feet	Feet
Alluvium		23
Sand, orange and red; grades upward into alluvial soil	8	
Clay, gray and brown; grades down into sand	2	
Sand, interbedded gray and reddish tan; contains a few grains of chert	5	
Gravel and sand, mostly covered	8	

Similar gravel along Pearl River is extensively mined for road metal (Locality H).

The total thickness of the stream alluvium along the larger streams is not known. Along the Pascagoula River in George County it is at least 30 feet thick and at Locality Z, Hancock County, on Pearl River near Bogalusa, Louisiana, gravels have been mined to depths of 35 feet. Along the smaller streams the deposits are mostly less than 10 feet thick.

Water is abundant in the alluvium along Pearl and Pascagoula Rivers, but has been developed only in a few small farm wells. Movement is south with the streams, and large perennial supplies of uniform temperature could be obtained by pumping. Near the coast where water levels fluctuate with the tide water stream alluvium is sufficiently brackish and salty to prevent tree growth.

GEOLOGIC STRUCTURE AND MOVEMENT CHRONOLOGY

The sediments in the coastal area have been described as striking about east and dipping south off the southern flank of the Wiggins-Lucedale anticline,[39] [40] a structural high extending across northern George, Stone, and Pearl River Counties. Published gravity anomaly maps[41] [42] show an axis of gravity minimum paralleling the coast and a few miles inland—possibly implying that farther south the sediments dip north beneath the Gulf and east of the Mississippi River debouchure. A correlation of sediments along the off-shore islands also suggests that beds lie nearly flat east and west beneath the Mississippi Sound (Plate 14), and that they lie slightly higher at Ship Island but begin the plunge into the Mississippi delta between Ship Island and Cat Island.

Widespread marine faunal zones in the sediments beneath fresh water are the most trustworthy indications of structures. These have been described by Gravell and Hanna[43] who show the *Heterostegina*

zone at about 3,400 feet below sea level near Pascagoula (Gulf Refining Company Dantzler Lumber Company No. 5, Sec. 32, T. 7 S., R. 6 W.) and at 5,600 feet below sea level near Slidell, Louisiana (Danciger's Holdsworth No. 1, Sec. 26, T. 8 S., R. 14 E.), a distance of 70 miles wherein the apparent western dip is 31 feet per mile. Correlation of the overlying *Amphistegina* zone in these wells gives an apparent dip of 25 feet per mile to the west. The guide fossil for the Pascagoula formation, *Rangia johnsoni,* was found at a depth of 700 feet at Biloxi; it is reported[44] from a depth of 2,610 feet in the Holdsworth well—an apparent westward dip of 37 feet per mile. Of the foraminifera found in the water wells (Table 2) the first appearance of 12 species is at increasingly greater depths westward, of 5 species is at essentially the same level, and of 4 species is at higher levels on Cat Island than at Biloxi. However, in contrast to the last 4 species, the first appearance of 4 other species is lower on Cat Island than at Biloxi. The correlation of water sands, largely based on similar pressure, also furnishes evidence of increased dip in western Harrison and Hancock Counties.

The apparent dip on the *Heterostegina* zone normal to the Gulf (Probably near true dip) is given by Gravell and Hanna[45] as about 30 to 40 feet per mile south across George County, and 110 feet per mile across Jackson County. North of Pass Christian, western Harrison County, the apparent dip south along the top of the basal sand of the Graham Ferry formation is 85 feet per mile. The beds in northern Stone County are nearly flat on the crest of the Wiggins anticline, but farther south across Harrison County the dip steepens until it is about 60 feet per mile in the fresh-water sands at Gulfport. Beyond this point it appears to decrease and may actually be reversed in the vicinity of the channel islands (Plate 10). Across Pearl River County Gravell and Hanna[46] give an apparent southern dip on the *Heterostegina* zone of about 30 feet per mile in the northern part, a dip that steepens to about 110 feet per mile in the southern part. More gentle apparent dips for the shallower fresh-water beds across Pearl River County are noted from Lumberton to Nicholson (Plate 11).

Evidence is accumulating that downwarping along the Mississippi Gulf Coast is associated with deltaic deposition; and active subsidence in the St. Bernard subdelta, which is nearest the Mississippi Gulf Coast, has been demonstrated by R. J. Russell.[47] The various sub-

deltas as recently described by R. J. and R. D. Russell are dated by F. B. Kniffen;[48] their respective names, position within the Recent delta (bounded by apex of distributaries and the Gulf), and age are indicated in the following table.

NAME	POSITION	AGE
Balize	Southeast	Recent and Post Indian
St. Bernard	East	Bayou Petre culture; abandoned 100 to 500 years ago
Forts	Southeast	Bayou Cutler culture (Coles Creek?)
Lafourche	South Center	
Plaquemines-Terrebonne	West	
Teche	West	Pre-mound builders

Earlier R. J. Russell[49], following C. W. Howell (1870), described another subdelta, the Metairie-Gentilly, which is exposed along the southern and eastern shores of Lake Pontchartrain. The evidence for this possible subdelta is apparently not so conclusive as the evidence for the others, but this subdelta appears to be older and more submerged than the St. Bernard subdelta which lies on the eastern edge. Later Russell[50] stated that "Lake Borgne and a portion of Mississippi Sound lie between the Metairie-Gentilly and St. Bernard subdeltas" but the Metairie-Gentilly subdelta is not included in his chronology.

In northern Hancock and southwestern Pearl River Counties the Citronelle formation is warped down on the west side of a structural flexure which trends southeast from Bogalusa, Louisiana, to Bay St. Louis and the western end of Ship Island. This flexure antedates the time of formation of the Pamlico plain whose northern limit across Harrison and Hancock Counties is essentially flat or within the vertical range of depositional irregularities. If there has been any general tilting of the Pamlico plain within these counties, it has been a few feet in a southerly direction— an amplification of the initial depositional slope difficult to detect but suggested by the partial submergence of Recent beach ridges in the extreme southern part of Hancock County, and by the salt-water marsh near the mouth

of the Pearl River where natural levees might be expected. However, at least a part of this submergence is due to the recent rise of sea level.

In the vicinity of the Pascagoula estuary the Pamlico surface has been locally depressed to an altitude of about 10 feet. The beach ridges behind the Pamlico scarp are outlined by 10-foot and 20-foot contours on the Pascagoula topographic quadrangle. The tops of these ridges stand at about 40 feet across Harrison and Hancock Counties.

All the described shell middens and mounds of the Gulf Coast[51] are along the present beaches or estuaries on or below the Pamlico terrace plain except one mound which is composed of clay on the flood plain of Tchoutacabouffa River at an elevation of about 20 feet. Mounds and potsherds also were seen at and near Red Bluff on Red Creek 1 mile west of its confluence with Black Creek in northeast Jackson County at altitudes of 20 to 40 feet. Several localities are now partly submerged and some, as on Deer Island and on the tip of Point Cadet at Biloxi, are being actively eroded by the waves. The coast was inhabited near Biloxi by the Biloxi tribe in 1699 and by the Chato tribe during an unknown time; and the coast along the Pascagoula River, by the Pascagoula, Chozettas, and Moctobys[52] tribes in the early part of the eighteenth century. The early French maps show St. Louis Bay, Back Bay, and the estuary mouth of the Pascagoula River,[53] as well as the barrier islands, essentially in the present positions. Although the chronologic relations of the coastal culture or cultures (in relation to the Bayou Petre and Bayou Cutler cultures) yet remain to be worked out, the available evidence suggests that they are not extremely ancient and therefore that the deposition of the St. Bernard subdelta has not appreciably depressed the Mississippi coastal area. If the downwarping of the Citronelle formation in Hancock, Harrison, and Pearl River Counties is ascribed to the growth of the St. Bernard subdelta, which is dated by the Bayou Petre culture, the Pamlico plain is of Recent origin.

The strong western component of dip in southwestern Pearl River and Hancock Counties could be explained by a deltaic load of an earlier eastern shift of the Mississippi distributaries—possibly the older Metairie-Gentilly subdelta—or by Pleistocene sedimentation. The lack of evidence of terraces in the downwarped area, plus

the apparent lithologic continuity of the Citronelle formation, implies that this area stood above the base level of the Pleistocene terraces (except the Citronelle and Pamlico) and that the downwarping occurred in late Pleistocene or early Quaternary time. However, if the downwarping was continuous during the Citronelle-Pamlico interval perhaps no extensive benches would be formed and a thin veneer of stream or marine deposits would be difficult to separate from the Recent alluvium and soils. J. W. Frink[54] correlates thick wedges of sediments in south Louisiana with the Pleistocene terraces of Fisk.[55] If the Recent deltaic mass has not materially depressed the area in Mississippi, it would seem that only the Bentley mass of Frink is close enough to have done so in Pleistocene time. The greatest thickness of his Bentley, as shown in eastern Louisiana on his isopach map, is 1,000 feet (near the southwestern corner of Pearl River County). The disappearance of the Citronelle beneath younger deposits at altitudes down to 50 feet farther east in Harrison and Jackson Counties is difficult to explain, considering the shallow depths at which *Rangia johnsoni* are reported. Possibly some of deposits included in the Citronelle formation in that area belong to younger terraces, but this remains to be demonstrated.

GROUND WATER

HISTORY OF GROUND-WATER DEVELOPMENT

Just when the first successful flowing well was drilled in the coastal area is not definitely known, but the available records suggest that it was about 1884. At the time of publication of Hilgard's report in 1860 there were no artesian wells, although he pointed out the possibility of obtaining artesian water, probably because there were at least a hundred flowing wells in the black belt of northeastern Mississippi.[56] According to C. W. Carlston, correspondence in the files of E. A. Smith, former State Geologist of Alabama, reveals that Frank Sutter, of the Sutter Brothers, a family which has drilled most of the wells in the coastal area, had drilled 70 wells in the coastal area by 1901 and that others had drilled 13 wells. Sutter wrote that the yields obtained from the wells ranged from 40 to 450 gallons a minute and the elevations to which the water would rise ranged from 25 to 80 feet above the surface. He also observed that the higher pressures and the larger flows were derived from the deeper sands, a condition to be anticipated from the greater elevation

of the deeper sands in the outcrop areas. The expansion of well drilling on the coast during the last 15 years of the nineteenth century rather closely followed the introduction of the jetting method of drilling which was used by W. C. Wells in 1884[57] and which has been the principal method of well construction in the area since then.

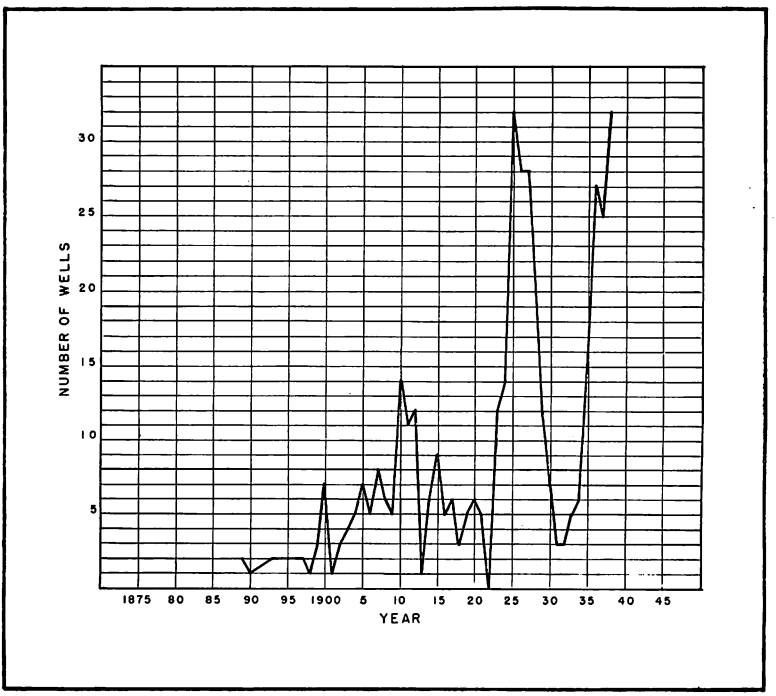


Figure 19.—Graph showing number of wells drilled annually from 1888 to 1938 in Mississippi Gulf coastal area.

L. C. Johnson and E. C. Eckel[58] listed 119 wells in 1903, the oldest of which was reported drilled in 1884. The reported depths ranged from 150 to 1,550 feet and averaged 620 feet. The depth interval is nearly that of the vertical range of fresh water, and all subsequent development has been in sands that were producing water at the beginning of this century.

At the present time, 1944, information has been obtained on about 607 wells in these six counties. Of the 476 recorded well depths in the three coastal counties the range is from 20 to 1,600 feet and the

average is 734 feet, or 114 feet more than the average depth for the same area in 1903. Many of the older wells can no longer be included; and, within the municipalities, buried well heads and interconnected water mains hinder a complete inventory. However, it is believed that perhaps 80 percent of the wells are included in the tables of wells (13-18). Some idea of the years when most of the wells now in use were drilled is given in Figure 19.

Besides the records of wells drilled for water, the more recent search for oil has given information regarding the geology of the water sands. The first well for oil in Mississippi appears to have been a test well drilled to a depth of about 1,800 feet in 1901, just west of Bay St. Louis, along the Louisville and Nashville Railroad in Hancock County.[59] Later attempts were made along the coast, mostly in the vicinity of Pascagoula, but during the last few years numerous wells have been drilled on the Wiggins-Lucedale ridge in the three northern counties.

The rapid increase of population since 1940 has caused an unprecedented draught on the water supply, almost all of which is obtained from deep artesian wells. The increased rate of withdrawal of water from the underlying sands has lowered the natural pressure of wells in the vicinity of heavy pumping, in some cases sufficiently so to stop natural flow.

GROUND-WATER RESOURCES BY COUNTIES

GEORGE COUNTY

AREA, 481 SQUARE MILES. POPULATION 8,704 (CENSUS OF 1940)

GENERAL FEATURES

George County occupies the northeastern corner of the Mississippi coastal panhandle. The county has a relief of 305 feet from about 10 feet along Pascagoula River to 315 feet in the hill portion. Most of the county is in the long leaf pine hills, which are bisected from north to south by the Pascagoula River bottoms. The alluvial flood plain extends along the Pascagoula River, its tributaries, Red, Black, and Whisky Creeks on the west, and the Escatawpa River on the east. The long leaf pine hills may be further subdivided into the Citronelle upland, High terrace upland, and the clay terrain of the Pascagoula and Graham Ferry formations. The lowlands include (1) a strip of plain where clays of the Pascagoula and Graham Ferry

formations lie at the surface or beneath a thin soil mantle, and (2) the flood plain underlain by stream deposits—most abundant along the Pascagoula River but also present in appreciable amounts along Red Creek and Escatawpa River.

GROUND-WATER SUPPLIES

The ground-water supplies of George County are largely undeveloped. The largest settlement is Lucedale, the county seat, having a population of 1,204 in 1940. Here water is derived from protected springs which seep out of the base of the Citronelle terrace deposits. The town uses from 75,000 to 100,000 gallons per day from this source. Most of the small shallow wells in the county derive their supplies from either the Citronelle or the High terrace deposits which contain sufficient water under water-table conditions for domestic needs. Where these deposits are absent, as on the flood plains of the Pascagoula and Escatawpa Rivers, water under artesian conditions is found at relatively shallow depths in the Pascagoula formation. The total yield from flowing wells in the county is about 200 gallons per minute of which 120 come from an abandoned well 8 miles southwest of Lucedale (Well 34, Table 13). The wells range from 23 to 335 feet in depth; many of them were drilled at saw-mill sites which have since been abandoned. Electrical logs of oil prospect wells show that large supplies, when economically justified, may be derived from the Pascagoula formation, as well as from the underlying Hattiesburg formation and Catahoula sandstone down to depths as great as 1,200 feet.

The chemical characteristics of water from the Citronelle and Pascagoula formations were determined analytically (Table 5). All the analyses are of waters probably from sands of the Pascagoula formation, except four (Wells 12, 14, 16, and 33) which are of waters from the Citronelle formation. The waters from the Citronelle are low in dissolved solids; they frequently stain utensils with iron. The water from the Pascagoula formation is a soft sodium bicarbonate type, containing some iron, and, in two analyses (samples from wells 2 and 31), containing more than one part per million of fluoride—a constituent likely to cause mottled teeth in children during the endemic stage of tooth growth.

HANCOCK COUNTY

AREA, 485 SQUARE MILES. POPULATION, 11,328 (CENSUS OF 1940)

GENERAL FEATURES

Hancock County is the westernmost of the three coastal counties. About 60 percent of the county is within the coastal pine meadows, which includes the Pamlico plain and the alluvial plain of the Pearl River, which borders the county on the west. The remainder of the county, mostly on the northeast, is within the long leaf pine hills. This area may be divided into three sections from south to north: the Low terrace, the Citronelle, and the clay terrain of the Graham Ferry formation. Most of the county is less than 25 feet above the sea, but the long leaf pine hills rise to a maximum elevation of 245 feet on the crest of a ridge capped by the sands and gravels of the Citronelle formation on the northern edge of the county. The population is sparse except at Bay St. Louis, in a few logging communities near the Pearl River, and at Kiln in the southeastern part of the county adjacent to St. Louis Bay.

GROUND-WATER SUPPLIES

The extensive lowlands together with the sediments that dip steeply to the southwest furnish satisfactory conditions for flowing artesian water. The first wells were drilled for a water supply at the county seat of Bay St. Louis about 1888 into the basal gravels of the Citronelle formation, which is an extensive and unique aquifer in this county. These wells derive water from depths less than 500 feet, but, because greater pressure could be obtained from the underlying Graham Ferry formation, deep wells were attempted; and by 1903 there were at least 21 wells in the county, 20 of them at Bay St. Louis and Waveland. In 1939 it was estimated that there were 300 wells within the county, nearly all of them drilled into sands within the Graham Ferry formation. The largest ground-water development is at the City of Bay St. Louis which uses about a million gallons per day during the peak summer months. Numerous wells in the lowlands have been drilled for saw-mills; they have since been abandoned and permitted to flow freely. Accordingly, the waste of water and the decline in artesian pressure in Hancock County is great.

The analyses of water from wells in Hancock County (Table 6) show the water to be soft sodium bicarbonate type and generally satisfactory for any use, although the bicarbonate may be sufficient to cause priming or foaming in boilers. The fluoride content of the samples analyzed is below 1 part per million which is considered the minimum to cause appreciable mottling of the enamel in children's teeth.

HARRISON COUNTY

AREA, 585 SQUARE MILES. POPULATION, 50,799 (CENSUS OF 1940)

GENERAL FEATURES

Harrison County is the central and most thickly populated of the three coastal counties. It includes, from south to north, Cat Island and Ship Island, the thickly populated coastal pine meadows (Pamlico plain), the downwarped remnants of the Citronelle upland (Low terrace), and, in the higher northern portions, the clay terrain of the Graham Ferry formation. The county is drained by small streams flowing southeast to the coastal pine meadows where they debouche into Back Bay and St. Louis Bay.

GROUND-WATER SUPPLIES

Prior to 1903 at least 75 wells had been drilled in artesian strata in Harrison County[60] and all of them, with a few exceptions, were developed in sands of the Graham Ferry formation. This formation has continued producing water for numerous domestic and small municipal users, for nearly all the supply at military installations, and for substantial portions of the municipalities of Biloxi and Gulfport. In 1911 the "1,200-foot" sand (Pascagoula) was discovered at Gulfport, but to date it has been used only for city supply at Biloxi and Gulfport and for one third the supply at the Gulfport U. S. Naval Depots.

In the past, the customary method of municipal production has been to utilize natural pressure for discharge into land surface storage, and then to pump into elevated storage or into the municipal water mains. In recent years the yields of free-flowing wells have declined until it has been necessary to supplement this method by installing pumps in the wells. At Biloxi about three million gallons a day was produced in 1939 by free flow into surface reservoirs from the basal sand of the Graham Ferry formation and from a deeper

horizon in the Pascagoula formation. Since then deep well turbine pumps have been installed to supplement natural flow. Pumpage at Keesler Field has since ranged from two million to four million gallons a day and has so decreased natural pressure on the basal aquifer of the Graham Ferry that the city supply now comes almost entirely from the deeper "1,200-foot" sand (Pascagoula). Natural pressure on this sand at Biloxi had declined from about 50 feet above the land in 1927 to 40 feet in 1942, still a residual head sufficient to furnish most of the city supply by free flow into surface reservoirs. Production of water from the Graham Ferry formation and the pumping levels in wells at Keesler Field have been determined for part of 1942 and for 1943 and 1944 (Plate 9).

At Gulfport 1,598,220 gallons a day were pumped into the city mains in 1940 (Table 3A). This water comes from depths of 800 to 900 feet (Graham Ferry formation) and 1,100 to 1,200 feet (Pascagoula? formation). Water levels in the deeper sand have declined from about 65 feet above the land in 1910 to a measured minimum of 10 feet in 1943; in the shallower Graham Ferry, from a maximum of 80 feet above the land to a minimum of about 6 feet in 1939. Production from the Graham Ferry formation at Gulfport Field has averaged 1,200,000 gallons a day. At the Naval Depot, where production is of the same magnitude as at Gulfport Field, the pressure surface of the Graham Ferry was 8 feet higher in 1942 than the pressure surface of the deeper Pascagoula aquifer.

General information, regarding relative permeability and grain-size distribution in sands from wells in the county, has been determined (Table 4).

The quality of water in the artesian strata has been determined by analyses of the water from wells in Harrison County (Table 7). Like waters elsewhere in the coastal plain, sodium bicarbonate is the principal constituent; chlorines are present in appreciable amounts in the Pascagoula aquifer at Biloxi.

TABLE 3

MECHANICAL ANALYSES AND COEFFICIENTS OF PERMEABILITY OF WATER-BEARING SANDS FROM WELLS IN JACKSON COUNTY

(BASED ON ROTARY CUTTINGS)

County Well No. Name Depth in feet	Diameter of screen openings on which each fraction rests							Laboratory coefficients of permeability (Meinzer's units)
	2.0 mm. Granule gravel	1.0 mm. Very coarse sand	0.5 mm. Coarse sand	0.25 mm. Medium sand	0.125 mm. Fine sand	0.062 mm. Very fine sand	0.00 mm. Silt, clay	
Jackson 93 New Pascagoula city well								
282–292	0.0	0.1	0.3	36.5	59.5	3.2	0.4	354
292–302	0.0	0.0	0.4	57.6	40.7	1.1	0.2	495
302–312	0.0	0.0	0.1	11.9	86.4	1.3	0.3	404
312–322	0.0	0.0	0.1	11.0	85.7	2.7	0.5	330
322–332	0.0	0.0	0.0	14.1	83.8	1.9	0.2	446
332–342	0.0	0.0	0.1	21.3	76.6	1.6	0.4	443
342–352	0.0	0.0	0.1	27.1	70.8	1.8	0.2	504
352–362	0.0	0.1	0.1	30.5	66.0	2.9	0.4	391
362–372	0.0	0.0	0.1	60.4	38.1	1.2	0.2	495
372–382	0.0	0.0	0.2	77.4	21.0	1.0	0.4	553
382–392	0.0	0.0	0.7	71.9	25.1	1.8	0.5	530
392–408	0.0	0.3	2.5	70.8	22.5	2.7	1.2	280
Jackson 107 Pascagoula 801 feet								
217–238	0.0	0.1	4.1	73.4	21.9	0.4	0.1	743
238–259	0.1	0.1	1.6	59.2	38.5	0.4	0.1	705
259–280	0.0	0.0	0.6	49.1	49.8	0.5	0.0	1406
280–300	0.0	0.0	0.1	23.4	71.3	4.9	0.3	473
300–322	0.0	0.0	0.2	54.3	44.3	1.1	0.1	634
322–343	0.0	0.3*	1.5	68.2	28.3	1.6	0.1	634
343–363	0.4*	0.6*	0.9	19.0	70.2	8.3	0.6	315
715–727	0.0	1.6*	6.0	64.7	25.2	2.3	0.2	817
727–748	0.0	0.3	2.3	70.4	24.4	2.4	0.2	642
748–768	0.0	0.2	0.7	51.9	45.4	1.6	0.2	589
768–790	0.1*	0.1*	3.4	52.4	41.3	2.5	0.2	627
790–810	0.0	0.1	3.8	42.9	46.6	5.6	1.0	475
Jackson 112 Horn Island 2								
776–797	2.7*	1.2*	5.0*	43.8	36.7	9.2	1.4	456
797–810	3.4*	1.3*	7.7	61.0	23.6	2.4	0.6	647
Jackson 113 Horn Island 1								
752–775	0.1*	0.5*	1.0*	8.5	49.7	34.2	6.0	281
775–796	0.0	0.1*	2.8*	44.8	47.4	3.3	1.6	293
796–819	0.5*	1.0*	4.1	51.1	39.8	2.3	1.2	657
819–837	0.0	0.4*	1.6*	7.4*	77.3	12.4	0.9	733

*Part of this fraction is shale, fossil fragments, or lignite

TABLE 3A

GULFPORT MONTHLY WATER PRODUCTION RECORD (GALLONS)

	1939	1940	1941	1942
January	----------	56,872,329	42,079,464	54,387,240
February	----------	39,916,961	40,385,032	39,794,021
March	----------	40,671,277	42,167,179	----------
April	----------	43,721,981	52,763,197	----------
May	----------	49,317,191	66,741,216	55,936,520
June	----------	47,669,102	54,291,400	66,721,654
July	----------	49,161,234	54,792,016	----------
August	----------	49,956,412	53,304,774	----------
September	----------	54,703,971	52,724,017	----------
October	----------	57,694,721	52,863,116	----------
November	43,660,080	49,731,207	53,909,768	----------
December	42,657,840	43,871,017	47,764,155	----------

TABLE 4

MECHANICAL ANALYSES AND COEFFICIENTS OF PERMEABILITY OF WATER-BEARING SANDS FROM WELLS IN HARRISON COUNTY

(BASED ON ROTARY CUTTINGS)

County Well No. Name Depth in feet	Diameter of screen openings on which each fraction rests							Laboratory coefficients of permeability (Meinzer's units)
	2.0 mm. Granule gravel	1.0 mm. Very coarse sand	0.5 mm. Coarse sand	0.25 mm. Medium sand	0.125 mm. Fine sand	0.062 mm. Very fine sand	0.00 mm. Silt, Clay	
Harrison 81 Gulfport Field 4-A								
215–238	0.2	0.8	1.8	24.4	67.4	4.8	0.6	291
238–261	0.1	0.2	0.8	23.5	69.6	5.2	0.6	319
261–284	0.1	0.3	1.4	18.0	73.6	5.9	0.7	299
284–306	0.0	0.0	1.1	14.4	80.7	3.3	0.5	362
398–422	0.3	0.4	1.9	24.4	67.0	5.0	1.0	245
618–642	0.3	0.5	10.0	32.4	52.0	4.0	0.8	264
Harrison 83 Gulfport Field 3								
114–134	2.0	9.6	14.2	29.5	37.2	5.9	1.6	200
365–388	0.5	0.6	2.1	30.6	53.1	8.6	4.5	.....
573–596	0.1	0.3	2.3	44.7	48.4	3.1	1.1	333
596–620	0.7	1.0	3.0	20.6	62.1	10.5	2.1	213
620–643	0.0	0.1	0.9	27.3	65.3	5.1	1.3	303
Harrison 84 Gulfport Field 2								
547–568	0.0	0.4*	1.5*	4.8*	65.5	24.6	3.2	185
568–591	0.0	0.0	0.1*	3.7*	56.2	38.5	1.5	223
591–612	0.0	0.0	0.0	5.0	91.6	3.3	0.1	441
612–635	0.0	0.0	0.0	25.9	72.5	1.5	0.1	604
635–657	0.0	0.0	0.0	30.0	61.0	8.0	1.0	531
Harrison 85 Gulfport Field 1								
–568	0.0	0.2	0.5*	10.5	39.1	43.8	5.9	.....
568–592	0.0	0.0	0.3	17.5	52.4	28.3	1.5	265
592–614	0.0	0.0	0.1	9.3	80.8	9.3	0.5	459
614–639	0.0	0.0	0.1	5.5	76.9	16.8	0.7	476
639–659	0.0	0.0	0.1	6.5	80.1	13.0	0.3	344
Harrison 115 City of Biloxi								
0– 20	0.0	0.0	6.4	77.4	16.1	0.1	0.0	729
20– 40	0.0	0.6*	16.2	48.9	30.6	3.7	0.0	547
40– 60	0.0	0.0	10.9	72.4	14.7	2.0	0.0	851
60– 80	0.0	0.0	5.5	30.7	49.2	13.5	1.1	344
80– 100	0.0	0.0	6.4	35.2	51.4	6.5	0.5	405
100– 120	0.0	2.1*	20.4	45.9	29.6	2.0	0.0	628
120– 140	0.0	0.0	11.1	67.1	16.6	5.2	0.0	689
140– 160	0.0	1.6*	24.4	36.7	32.3	4.5	0.5	470
560– 580	0.0	0.2*	1.1	21.6	42.3	29.9	4.9	.....
580– 600	0.0	0.6	3.0	31.5	48.0	12.6	4.3	.....
600– 620	0.0	0.5	2.9	34.3	49.8	10.4	2.1	223
620– 640	0.0	0.0	1.3	29.7	55.0	9.9	4.1	251
640– 660	0.0	0.1	11.8	52.6	29.5	5.0	1.0	348
740– 760	0.0	0.2*	2.2	30.2	52.7	10.9	3.8	259
760– 780	0.0	0.8*	2.7	31.1	52.4	10.0	3.0	292
780– 800	0.0	0.9*	3.3	30.4	49.5	11.9	4.0	184
800– 820	0.0	0.3*	5.8	42.2	42.2	7.3	2.2	280
920– 940	0.0	0.0	0.0	49.8	41.4	7.4	1.4	328
940– 960	0.0	0.0	2.3	39.1	45.7	10.4	2.5	304
1120–1140	0.0	0.0	1.9*	31.5	56.3	8.0	2.3	408
1140–1160	0.0	0.0	0.7*	28.8	67.4	2.2	0.9	456
1160–1180	0.0	0.0	1.5*	29.8	60.3	5.1	3.3	450
1180–1200	0.0	0.0	1.6*	80.8	14.3	1.8	1.5	830
1200–1220	0.0	0.0	4.4*	51.6	38.9	3.6	1.5	494
1220–1225	0.0	0.0	6.1*	38.3	49.4	4.2	2.0	458
Harrison 160 Advanced Naval Base 1								
710– 725	0.0	0.0	20.2	68.2	10.6	1.0	0.0	.....
811– 833	0.0	0.8*	2.7	38.4	54.2	3.9	0.0	.....
1199–1221	0.0	0.0	0.5*	29.4	53.9	14.0	2.2	.....
Harrison 199 Cat Island								
0– 20	0.1	0.1	10.5	57.4	31.5	0.3	0.1	763
20– 42	4.5*	2.7*	15.5	44.9	31.4	0.9	0.1	552
42– 68	1.1*	1.1*	1.3*	17.1	77.4	1.8	0.2	397
68– 93	24.3*	4.5*	3.1*	27.6	35.8	4.0	0.7	257
93– 117	4.5*	2.4*	2.1*	43.5	43.2	3.3	1.0	278
117– 136	0.0	0.2	7.5	55.9	33.9	2.0	0.5	484
136– 160	3.4*	2.7*	10.8*	45.5	35.0	2.0	0.6	413
160– 182	1.2*	0.7*	4.5	47.7	43.6	2.0	0.3	488
182– 201	10.4*	2.1	9.4	50.4	24.9	1.6	1.2	.....
335– 357	0.0	0.2	3.0	64.8	28.5	2.5	1.0	465
927– 948	0.1*	0.4*	0.7*	15.4	61.7	17.6	4.1	167
948– 972	0.0	0.2	0.3	19.7	54.2	19.3	6.3	181

*Part of this fraction is shale, fossil fragments, or lignite

TABLE 5

ANALYSES OF WATER FROM WELLS IN GEORGE COUNTY (PARTS PER MILLION)

Well No.	Date of collection	Depth to sand (feet)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium & potassium (Na+K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total dissolved solids	Total hardness $CaCO_3$
2	Pas. Aug. 28, 1941	-335	.....	.....	.....	.....	.....	39	245	2	63	1.2	.....	.....	12
4	Pas. Aug. 28, 1941	- 23	.....	.....	.....	.....	.....	.....	10	1	5	0	0	.....	15
5*	Pas. May 1914	-80	16	2.0	3.4	1.1	6.9	.0	18	.8	6.5	.....	.0	51	13
6*	Pas. May 1915	200-260	16	.0	5.2	2.4	130	12	229	12	69	.....	.0	377	23
12	Cit. Aug. 28, 1941	.....	.....	.....	.....	.....	.....	.....	8	1	2	.0	1.4	.....	15
14	Cit. Aug. 28, 1941	0- 20	.....	.....	.....	.....	.....	.....	2	1	10	0	13	.....	27
16	Cit. Aug. 28, 1941	0- 32	.....	.....	.....	.....	.....	.....	18	1	4	0	6.5	.....	30
18	Pas. Aug. 28, 1941	.....	.....	.....	.....	.....	.....	.....	16	10	2	.1	0	.....	18
29	Pas. Aug. 28, 1941	180-190	.....	.....	.....	.....	.....	40	216	5	14	.7	.....	.....	18
30	Pas. Aug. 28, 1941	140-145	.....	.....	.....	.....	.....	.....	91	7	2	.2	0	.....	12
31	Pas. Aug. 28, 1941	-153	.....	.....	.....	.....	.....	14	280	1	67	1.3	0	.....	27
33	Cit. Aug. 28, 1941	- 75	.....	.....	.....	.....	.....	.....	27	1	3	0	2.7	.....	34
34	Pas. Aug. 28, 1941	- 93	.....	.....	.....	.....	.....	.....	66	4	3	.2	0	.....	36
35	Pas. Aug. 28, 1941	-145	.....	.....	.....	.....	.....	18	172	8	4	.6	0	.....	12
36	Pas. Aug. 28, 1941	- 93	.....	.....	.....	.....	.....	21	140	9	4	.7	0	.....	18
37	Pas. Aug. 28, 1941	-104	.....	.....	.....	.....	.....	24	137	7	5	.5	0	.....	21
43	Pas. Aug. 28, 1941	-140	.....	.....	.....	.....	.....	9.8	132	10	4	.5	0	.....	14
44	Pas. Aug. 28, 1941	30-120	.....	.....	.....	.....	.....	11	136	9	5	.6	1.2	.....	21
46	Pas. Aug. 28, 1941	132-185	.....	.....	.....	.....	.....	21	132	12	3	.4	.....	.....	14

Analysts: 2, 4, 12, 14, 16, 18, 29, 30, 31, 33, 34, 35, 36, 37, 43, 44, 46, M. D. Foster and L. W. Miller, U. S. Geological Survey; 5, W. F. Hand, Mississippi State Chemical Laboratory; 6. E. S. Wallace, University of Mississippi. *U. S. Geol. Survey Water-Supply Paper 576, p. 172, wells 1 and 2
Pas. is for Pascagoula formation; Cit. is for Citronelle formation

TABLE 6

ANALYSES OF WATER FROM WELLS IN HANCOCK COUNTY (PARTS PER MILLION)

Well No.	Date of collection	Depth to sand (feet)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium & potassium (Na+K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total dissolved solids	Total hardness $CaCO_3$
8	G. F. June 24, 1939	486-506	.....	.....	.....	.....	.....	29	217	1	5	.1	.....	.....	9
24	G. F. June 24, 1939	-495	.....	.....	.....	.....	.....	12	191	8	7	.7	.....	.....	9
37	G. F. June 24, 1939	340-450	.....	.....	.....	.....	.....	8.8	149	8	4	.1	.....	.....	6
49	G. F. June 24, 1939	775-839	.....	.....	.....	.....	.....	18	225	6	27	0	.....	.....	9
50	G. F. June 24, 1939	800-860	.....	.....	.....	.....	.....	25	228	4	35	0	.....	.....	10
55	G. F. June 24, 1939	617-657	.....	.....	.....	.....	.....	7.9	155	7	4	.1	.....	.....	10
59	G. F. June 24, 1939	800-870	.....	.....	.....	.....	.....	8.8	196	6	11	.2	.....	.....	9
61	G. F. June 24, 1939	820-840	.....	.....	.....	.....	.....	7.9	256	1	24	.2	.....	.....	9
63*	G. F. April 1914	996-1036	28	1.2	1.6	.8	135	7.2	268	3.4	36	.....	.90	344	7
64*	G. F. September 1919	-500	30	.07	3.1	.7	96	9.6	208	6.5	21	.....	.75	270[a]	11
65*	G. F. September 1919	-910	33	.07	1.6	.7	125	19	260	3.3	38	.....	.67	349[a]	7
74	G. F. June 24, 1939	-950±	.....	.....	.....	.....	.....	29	162	6	7	0	.....	.....	8
78	G. F. June 24, 1939	582-622	.....	.....	.....	.....	.....	21	207	2	13	.4	.....	.....	10
82	Cit. June 24, 1939	-415	.....	.....	.....	.....	.....	24	247	2	39	.2	.....	.....	9

Analysis: 8, 24, 37, 49, 50, 55, 59, 61, 74, 78, 82, M. D. Foster and J. D. Hem, U. S. Geological Survey; 63, W. F. Hand. Mississippi State Chemical Laboratory; 64, 65, H. B. Riffenburg, U. S. Geological Survey. *U. S. Geol. Survey Water-Supply Paper 576, p. 189, wells 6, 5, 4 [a]Calculated

G. F. is for Graham Ferry formation; Cit. is for Citronelle formation

TABLE 7

ANALYSES OF WATER FROM WELLS IN HARRISON COUNTY (PARTS PER MILLION, EXCEPT pH)

Well No.	Date of collection	Depth to sand (feet)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium & potassium (Na+K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total dissolved solids	Total hardness $CaCO_3$	pH
13	Pas. June 27, 1939	500– 590	.....	.....	.....	.....	.....	25	126	13	2	.2	.....	.....	6	.....
19	G. F. June 27, 1939	366– 427	.....	.....	.....	.....	.....	0	81	6	3	.1	.....	.....	10	.....
23	G. F. June 27, 1939	– 536	.....	.....	.....	.....	.....	3.9	107	13	2	0	.....	.....	8	.....
32	G. F. June 27, 1939	– 700	.....	.....	.....	.....	.....	0	116	10	3	.5	.....	.....	3	.....
48	G. F. June 27, 1939	– 749	.....	.....	.....	.....	.....	6.9	134	11	2	.4	.....	.....	8	.....
64	G. F. Sept. 7, 1942	589– 624	.....	.....	.....	.....	.....	20	136	7	4	.....	.....	222	9.0	8.8
66	G. F. Sept. 7, 1942	567– 646	.....	.....	.....	.....	.....	5.9	136	8	4	.....	.....	205	10	8.3
67	G. F. Sept. 7, 1942	560– 640	55	0.14	1.6	.9	Na 58, K .7	0	147	11	7.0	.1	.4	208	7.7	7.9
68	G. F. Sept. 7, 1942	566– 623	.....	.....	.....	.....	.....	16	142	8	4	.....	.....	222	12	8.8
84	G. F. Sept. 7, 1942	545– 645	.....	.....	.....	.....	.....	16	138	10	4	.....	.....	205	9.0	8.7
85	G. F. Sept. 7, 1942	554– 658	48	.04	1.0	.9	Na 55, K .4	3.9	128	11	4.2	.1	.0	185	6.2	8.3
87	G. F. June 27, 1939	– 617	.....	.....	.....	.....	.....	0	98	4	2	0	.....	.....	36	.....
89*	G. F. Oct. 1914	530– 550	51	1.1	2.2	.8	42	.0	95	13	6.0	.....	.00	161	9	.....
97*	G. F. Sept. 1919	670– 690	12	.08	1.1	.7	51	.0	122	10	4.0	.....	Trace.	139[a]	6	.....
98*	G. F. Sept. 1919	790– 836	18	.03	1.9	.8	90	24	176	11	5.5	.....	Trace.	238[a]	8	.....
102	Pas. June 27, 1939	– 970	.....	.....	.....	.....	.....	22	201	7	9	.3	.....	.....	8	.....
103*	G. F. Sept. 1919	– 850	42	.02	.6	.5	120	26	222	9.2	18	.....	Trace.	332	4	.....
106*	G. F. Sept. 1919	780– 800	31	.02	.4	.3	112	28	207	10	21	.....	Trace.	316	2	.....
115	Pas. Sept. 7, 1942	1102–1226	.....	.....	.....	.....	.....	35	262	1	162	.5	.0	594	15	9.0
118	Pas. June 27, 1939	– 825	.....	.....	.....	.....	.....	0	179	12	3	0	.....	.....	4	.....
120*	Pas. Sept. 1919	– 928	51	.09	1.0	.4	60	6.0	130	8.1	5.3	.....	Trace.	196[a]	4	.....
123*	Pas.	– 960	24	.80[b]	1.3	.3	Na 116, K 1.2	.0	258	4.0	28	.....	.....	304	4	.....
125	G. F. Nov. 11, 1938	– 400	.....	.....	.....	.....	.....	17	193	.....	1.0	.....	.....	240	.....	.....
126*	Pas. Nov. 1911	– 960	24	.60	13	3.2	86	19	193	5.9	12	.....	.12	251	46	.....
127*	Pas. Sept. 1919	– 920	25	Trace.	2.6	.9	95	23	170	10	20	.....	.68	261[a]	10	.....
128*	G. F.	– 727	41	.75[b]	.5	.1	Na 56, K .9	.0	132	7.2	5.9	.....	.....	177	2	.....
131*	G. F. Sept. 1919	400– 440	16	Trace.	2.6	1.5	80	23	146	10	4.0	.....	Trace.	209[a]	13	.....
132	Pas. June 27, 1939	–1000	.....	.....	.....	.....	.....	18	253	3	72	.2	.....	.....	9	.....
142*	G. F. Sept. 1919	885– 915	21	.06	2.6	1.4	73	8.4	177	11	5.0	.....	Trace.	209[a]	12	.....
143*	G. F. Sept. 1919	– 537	28	.04	.4	.3	67	17	117	11	8.0	.....	Trace.	189[a]	2	.....
147	G. F. July 1937	866– 958	20	.69	1.3	.6	91	14	195	11	6.0	.....	.....	240	5.7	.....
150*	Pas. August 1919	871– 944	40	.09	.2	.3	139	37	254	9.0	9.0	.....	Trace.	361	2	.....
152*	G. F. August 1919	800– 862	28	.09	.3	.7	77	32	127	11	6.0	.....	Trace.	229	4	.....
154*	Pas. Sept. 1919	1230–1262	32	.08	.6	1.0	103	37	193	11	5.0	.....	Trace.	292	6	.....
160	Pas. Sept. 8, 1942	1175–1196[c]	26	.04	1.4	.9	Na 147	34	306	8.2	7.8	.5	.0	372	7.2	9.1
161	G. F. Sept. 8, 1942	816– 854	29	.02	2.2	.8	Na 80	22	150	11	7.8	.2	.1	222	8.8	9.0
162	G. F. Feb. 25, 1943	673– 761	30	.14	.6	.3	.....	0	141	8.1	5.6	.....	0	224	5.0	8.1
169	G. F. June 27, 1939	825– 890[d]	.....	.....	.....	.....	.....	21	133	8	5	0	.....	.....	8	.....
175	G. F. June 27, 1939	802– 883	.....	.....	.....	.....	.....	4.9	136	8	3	.6	.....	.....	14	.....
176*	G. F. August 1919	800– 840	48	.04	2.7	.7	58	.0	143	10	4.7	.....	.28	191	10	.....
189*	G. F. Sept. 1919	610– 665	40	.04	.8	.4	58	.0	143	8.7	8.0	.....	Trace.	213	4	.....
190*	G. F. Sept. 1919	– 700	43	.03	.8	.4	62	13	122	8.1	11	.....	Trace.	198[a]	4	.....
191	G. F. June 27, 1939	790– 880	.....	.....	.....	.....	.....	21	258	1	42	.1	.....	.....	8	.....
201*	G. F. August 1919	– 770	38	.04	1.6	.9	94	25	175	12	10	.....	Trace.	268[a]	8	.....
202	G. F. July 23, 1943	721– 730	.....	0	.....	.....	.....	.....	252	7	6	.6	1.2	.....	10	8.8

Analysts: 13, 19, 23, 32, 48, 87, 102, 118, 132, 169, 175, 191, M. D. Foster and J. D. Hem, U. S. Geological Survey; 64, 66, 68, 84, 202, J. D. Boreman, U. S. Geological Survey; 67, 85, 160, 161, E. W. Lohr, U. S. Geological Survey; 89, Mississippi State Chemical Laboratory; 97, 98, 103, 106, 120, 127, 131, 142, 143, 150, 152, 154, 189, 190, C. S. Howard, U. S. Geological Survey; 115, M. S. Berry, U. S. Geological Survey; 123, 128, W. R. Perkins, (in Mississippi Agr. Exper. Sta. Bull. 89, p. 71, 1905); 125, 126, 147, W. F. Hand, Mississippi State Chemical Laboratory; 162, Mississippi State Board of Health; 201, M. D. Foster, U. S. Geological Survey.

*U. S. Geol. Survey Water-Supply Paper 576, p. 199, wells 22, 20, 19, 25, 26, 1, 2, 3, 6, 7, 5, 24, 27, 9, 10, 17, 23, 30, 28, 34, in order listed. [a]Calculated. [b]Iron and aluminum oxides (Fe_2O_3+Al_2O_3). [c]Another screen set at 1126–1136 feet. [d]Another screen set at 630-650 feet in 77 feet of sand

Pas. is for Pascagoula formation; G. F. is for Graham Ferry formation

JACKSON COUNTY

AREA, 744 SQUARE MILES. POPULATION, 20,601 (CENSUS OF 1940)

GENERAL FEATURES

Jackson County is the easternmost county on the Gulf Coast in Mississippi. Within its borders are the off-shore islands, Horn, Round, and Petit Bois. The Pascagoula River bisects the county from north to south so that about 110 square miles of the county is salt marsh and flood plain of the river. A smaller stream, the Escatawpa River, flows south along the county line to within 6 miles of the coast where it turns west and joins the Pascagoula. This stream also is bordered by swamps and flood-plain deposits of much smaller extent. The remainder of the county may be classified as part of the long leaf pine hills and part of the coastal pine meadows. The hills may be divided into the High terrace deposits east of the Pascagoula River in the northern part of the county; into the area underlain by clays of the Graham Ferry formation in the northwestern part of the county; and into the sandy hills of the Citronelle formation and the Low terrace deposits, bordering the coastal pine meadows in the middle portion of the county.

GROUND-WATER SUPPLIES

L. C. Johnson[61] lists 20 wells that were drilled in Jackson County during the period 1885-1903. Most of these wells were drilled to depths between 514-720 and 866-965 feet, tapping sands in the basal part of the Graham Ferry and the upper part of the Pascagoula formations, but two, which were originally drilled for oil, to depths of 1,200 and 1,550 feet. Stephenson, Logan, and Waring[62] describe 16 additional water wells drilled before 1918 to depths within the intervals 535 to 640 and 793 to 993 feet. Since 1918 numerous wells along the coast have been drilled into these two aquifers and also into a deeper sand of the Pascagoula formation between 1,100 and 1,300 feet beneath the surface. In recent years natural flow has failed to supply enough water at Pascagoula, Moss Point, and Ocean Springs, so that pumping is required. This has led to the development of the shallower sands within the Graham Ferry formation. At the present time the city of Pascagoula pumps 3 million gallons a day of which 2 million comes from the Graham Ferry, the remainder from a sand in the upper part of the Pascagoula formation.

An additional ½ million is used from the Pascagoula at the shipyards. The city of Moss Point pumps about ½ million gallons each day into elevated storage. This water, which comes from the upper aquifer of the Pascagoula, flows into surface storage. In recent months (1944) additional water for surface storage is obtained by pumping directly one of the four wells furnishing municipal supply. This is a fortuitous arrangement, as a paper mill at near-by suburban Kreole pumps 1 ½ million gallons a day from the Graham Ferry, thereby making the supplies independent and free of interference between wells.

The town of Ocean Springs derived a sufficient supply for the population of 1,881 (1940 census) by natural flow direct into the town mains, but later in 1943 the supply became inadequate and required supplemental pumping.

Chemical analyses of water from wells in Jackson County have been determined (Table 8), and repeated chloride determinations have been made at intervals since 1919 (Table 11). The underground waters are in general soft of the sodium bicarbonate type. In water from the Pascagoula formation and locally in water at Pascagoula and Horn Island from the Graham Ferry formation the chloride ion is present in appreciable amounts, indicating some contamination by saline water.

PEARL RIVER COUNTY

AREA, 828 SQUARE MILES. POPULATION, 19,125 (CENSUS OF 1940)

GENERAL FEATURES

Pearl River County, fourth largest in the state, is the northwestern county of the six counties described in this report. It is bordered on the west by Pearl River which is the boundary line for part of Louisiana and Mississippi and on the east and south by Stone and Hancock Counties. The county lies within the long leaf pine hills belt, the only flat area being the alluvial plain along the Pearl River and its tributary Hobolochitto Creek. The county has a relief of 330 feet, from 40 feet at the flood plain at Nicholson to 370 feet at the ridge of Citronelle deposits north of Poplarville. The topography within the long leaf pine hills may be divided into the areas underlain by the sands and gravels of the Citronelle and the slightly lower clay terrain of the Graham Ferry and Pascagoula formations.

TABLE 8

ANALYSES OF WATER FROM WELLS IN JACKSON COUNTY (PARTS PER MILLION, EXCEPT pH)

Well No.	Date of collection	Depth to sand (feet)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium & potassium (Na+K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total dissolved solids	Total hardness $CaCO_3$	pH
15	Pas. June 27, 1939	905– 965	.....	.....	.....	.....	.....	21	230	6	23	.1	.....	.....	9	.....
24	Pas. June 27, 1939	– 859	.....	.....	.....	.....	.....	19	227	2	96	0	.....	.....	14	.....
38*	G. F. Sept. 1919	590– 640	28	.02	1.3	1.1	115	53	185	8.7	6.7	.....	.88	311	8	.....
40*	G. F. Sept. 1919	495– 535	32	.04	.6	.4	105	77	102	10	8.0	.....	.80	294	3	.....
41	Pas. June 27, 1939	1200–1290	.....	.....	.....	.....	.....	16	301	1	762	0	.....	.....	52	.....
41*	Pas. Sept. 1919	1200–1290	42	Trace.	12	.6	619	30	312	4.3	756	.....	Trace.	1637	32	.....
42	Pas. June 27, 1939	1159–1224	.....	.....	.....	.....	.....	16	289	1	418	.1	.....	.....	30	.....
43	Pas. June 27, 1939	840– 940	.....	.....	.....	.....	.....	22	204	3	58	.2	.....	.....	6	.....
44	Pas.Sept. 1942	1258–1290	.....	.....	.....	.....	.....	28	272	1	342	.....	.....	890	42	8.6
48*	Pas. Sept. 1919	– 806	41	.05	2.8	.9	226	50	268	1.8	138	.....	1.3	601	11	.....
49*	Pas. Sept. 1919	753– 793	25	.04	2.4	.9	209	22	285	2.4	135	.....	Trace.	537[a]	10	.....
50	Pas. June 27, 1939	1065–1100	.....	.....	.....	.....	.....	23	445	2	292	1.3	.....	.....	12	.....
50*	Pas. Sept. 1919	1065–1100	37	.06	2.8	1.2	381	56	417	2.0	284	.....	Trace.	979	12	.....
61	Pas. May 6, 1939	963–1020	.....	.....	Trace.	Trace.	.....	12	334	.....	500	.....	.0	1254	.....	.....
64*	Pas. Sept. 1919	760– 840	37	.04	3.0	.8	241	65	256	1.0	147	.....	.30	627	11	.....
66	Pas. June 27, 1939	720– 820	.....	.....	.....	.....	.....	25	285	1	135	.2	.....	.....	9	.....
70*	G. F. Sept. 1919	– 545	34	.04	1.5	1.0	111	65	156	9.5	7.7	.....	Trace.	312	8	.....
77	Pas. June 27, 1939	– 700	.....	.....	.....	.....	.....	22	293	2	40	.1	.....	.....	4	.....
84	Pas. June 27, 1939	–1600	.....	.....	.....	.....	.....	11	380	1	550	1.3	.....	.....	21	.....
85	Pas. June 27, 1939	780– 800	.....	.....	.....	.....	.....	19	348	1	282	.6	.....	.....	10	.....
91	Pas. June 27, 1939	– 550	.....	.....	.....	.....	.....	25	297	2	71	.3	.....	.....	6	.....
104	G. F. Feb. 1, 1939	277– 403	.....	.....	Trace.	Trace.	.....	24	285	.....	137	.....	.0	532	.....	.....
105	G. F. Mar. 9, 1939	277– 403	19	.1	.....	.....	.....	24	290	1.6	125	.....	.....	522	5	.....
106	G. F. Mar. 9, 1939	277– 403	28	.1	.....	.....	.....	14	310	Trace.	171	.....	.0	610	5	.....
107	Pas. June 22, 1943	715– 805	18	0	.....	2.3	.....	.....	.....	0	310	.....	.....	.....	9.4	8.7
107	Pas. July 23, 1943	715– 805	.....	.....	.....	.....	.....	.....	388	1	290	.7	.0	.....	18	8.8
110	Pas. June 27, 1939	– 750	.....	.....	.....	.....	.....	15	322	1	435	.7	.....	.....	15	.....
112	G. F. July 1944	756– 819	21	.01	1.0	.4	127	28	209	4.8	40	.4	.0	322	4.0	9.0
113	G. F. July 1944	768– 836	20	.03	1.8	.3	183	37	213	1.9	116	.6	.0	463	5.5	9.2
113	G. F. Aug. 19, 1943	768– 836	15	.14	1.7	1.1	.....	18	238	.7	111	.....	0	487	8.8	9.0

Analysts: 15, 24, 41, (1939) 42, 43, 50, 66, 77, 84, 85, 91, 110, M. D. Foster and J. D. Hem, U. S. Geological Survey; 38, 40, 41, (1919), 64, 70, C. S. Howard, U. S. Geological Survey; 44, 107 (July), J. D. Boreman, U. S. Geological Survey; 48, 49, M. D. Foster, U. S. Geological Survey; 61, 104, 105, 106, W. F. Hand, Mississippi State Chemical Laboratory; 107 (June), 113, Mississippi State Board of Health.

*U. S. Geol. Survey Water-Supply Paper 576, p. 236, respectively numbered as wells 20, 22, 23, 15, 10, 8, 9, and 21. [a]Calculated

Pas. is for Pascagoula formation; G. F. is for Graham Ferry formation

Most of the county's population is rural. Picayune on the alluvial plain at the southern edge of the county had 5,120 people in 1940, largely occupied in lumbering and timber processing. Other rural communities, including the county seat of Poplarville (population 1,664 in 1940), are situated along U. S. Highway 11 and the Southern Railroad which cross the county from south to north.

GROUND-WATER SUPPLIES

The ground-water resources of Pearl River County are largely undeveloped although artesian conditions have been known since 1895 at Picayune where the largest present supplies are obtained from freely flowing wells, some yielding more than 500 gallons per minute. Although many small domestic supplies are obtained from sands and gravels of the Citronelle on hill tops in the long leaf pine hills, attempts to develop supplies for small municipalities along U. S. Highway 11 have been directed toward sands in the Graham Ferry and Pascagoula formations, and, although large supplies are present in these formations (as indicated on electrical logs of oil prospect wells), flowing water cannot be obtained in the higher portions of the county (Plate 2).

A thick bed of sand and gravel encountered below 400 feet in the western part of the county doubtless would support production, and large quantities of water may also be obtained in this area in the alluvium and in sands and gravels in the Graham Ferry formation at shallower depths. Large quantities are produced from these formations at near-by Bogalusa, Louisiana. Although there has been some decline of natural pressure in the vicinity of Picayune, deeper sands which have been developed in recent years furnish water under pressures which rises as much as 92 feet above the surface.

The quality of water of Pearl River County was already determined (Table 9). All the waters are low in dissolved solids, largely sodium bicarbonate. The water is satisfactory without treatment for most industrial and municipal uses.

TABLE 9

ANALYSES OF WATER FROM WELLS IN PEARL RIVER COUNTY (PARTS PER MILLION)*

Well location or No.	Date of collection	Depth to sand (feet)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium & potassium (Na+K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total dissolved solids	Total hardness $CaCO_3$
Millard	G. F. Jan. 1921	476–490	39	.33	5.2	1.7	36	0	107	6.5	3.0	Trace.	152	20
50	G. F. July 1914	540–553	22	.90	1.0	.8	84	17	165	15	5.5	1.0	220	6
Picayune	G. F. July 1914	–493	22	.62	1.4	1.3	90	17	174	16	5.5	.0	228	9
Cybur	G. F. Nov. 1914	650–685	24	.62	1.1	.9	76	9.6	166	14	6.0	.0	205	6
51	G. F. Apr. 1914	–500	20	.80	.9	.4	86	12	185	14	4.5	.....	230	4
Poplarville	Pas. June 1914	700–756	35	.55	3.2	1.0	15	0	37	7.4	6.0	.0	89	12

Analysts: Millard by C. S. Howard, U. S. Geological Survey; others by W. F. Hand, Mississippi State Chemical Laboratory.

*U. S. Geol. Survey Water-Supply Paper 576, p. 383, 1928.

Pas. is for Pascagoula formation; G. F. is for Graham Ferry formation

TABLE 10

ANALYSES OF WATER FROM WELLS IN STONE COUNTY (PARTS PER MILLION)*

Well location or No.	Date of collection	Depth to sand (feet)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium & potassium (Na+K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total dissolved solids	Total hardness $CaCO_3$
1	Pas. 1914	800–870	54	1.9	7.0	1.8	31	0	92	8.4	6.0	.0	152	25
17	Pas. Aug. 1919	–250	40	.21	.8	.7	65	0	155	13	3.9	.74	198	5
19	Pas. (?) Aug. 1919	–260	22	.04	.9	.6	17	0	43	1.6	3.5	Trace.	65	5

Analysts: 1, W. F. Hand, Mississippi State Chemical Laboratory; 17, 19, Margaret D. Foster, U. S. Geological Survey.

*U. S. Geol. Survey Water-Supply Paper 576, p. 431, 1928

Pas. is for Pascagoula formation

TABLE 11

CHLORIDE CONTENT OF SAMPLES OF WATER FROM WELLS IN JACKSON COUNTY
(PARTS PER MILLION)
ANALYZED BY U. S. GEOLOGICAL SURVEY, EXCEPT AS INDICATED

Well No.	Sept. 1919	1927	1929	1939	Field 1939	Aug. 1940	Sept. 1940	Oct. 1940	June 1942	Sept. 1942	Dec. 1942	June 1943	July 1943	July 1944
2	.....	.....	.....	.....	.....	.....	18	.....	.....	.....	.....	.....	.....	.....
7	.....	.....	.....	.....	.....	.....	32	.....	.....	.....	.....	.....	.....	.....
8	.....	.....	.....	.....	.....	.....	20	.....	.....	.....	.....	.....	.....	.....
9	.....	.....	.....	.....	.....	14	.....	.....	.....	.....	.....	.....	.....	.....
10	.....	.....	.....	.....	.....	.....	122	.....	.....	.....	.....	.....	.....	.....
12	.....	.....	.....	.....	.....	.....	82	.....	.....	.....	.....	.....	.....	.....
13	.....	.....	.....	.....	.....	24	.....	.....	.....	.....	.....	.....	.....	.....
14	.....	.....	.....	.....	.....	520	.....	432	.....	.....	.....	.....	.....	.....
15	.....	.....	.....	23	.....	78	.....	63*	.....	.....	.....	.....	24	.....
16	.....	.....	.....	.....	.....	22	.....	.....	.....	.....	.....	.....	.....	.....
19	.....	.....	.....	.....	.....	.....	70	.....	.....	.....	.....	.....	.....	.....
20	.....	.....	.....	.....	.....	.....	72	.....	.....	.....	.....	.....	.....	.....
21	.....	.....	.....	.....	.....	.....	156	.....	.....	.....	.....	.....	.....	.....
22	.....	.....	.....	.....	.....	.....	102	.....	.....	.....	.....	.....	.....	.....
23	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....
24	.....	.....	.....	96	.....	.....	132	.....	.....	.....	.....	.....	.....	.....
25	.....	.....	.....	.....	.....	.....	142	.....	.....	.....	.....	.....	.....	.....
26	.....	.....	.....	.....	.....	.....	58	.....	.....	.....	.....	.....	.....	.....
27	.....	.....	.....	.....	.....	.....	46	.....	.....	.....	.....	.....	.....	.....
28	.....	.....	.....	.....	.....	.....	84	.....	.....	.....	.....	.....	.....	.....
29	.....	.....	.....	.....	.....	.....	94	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	.....	.....	.....	.....	26	.....	.....	.....	.....	.....	.....	.....
31	.....	.....	.....	.....	.....	118	.....	.....	.....	.....	.....	.....	.....	.....
32	.....	.....	.....	.....	555	141*	.....	124	126	.....	102	.....	103	.....
33	.....	.....	.....	.....	.....	11*	.....	.....	.....	.....	.....	.....	.....	.....
37	.....	.....	.....	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....
38	6.7	.....	.....	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....
39	.....	.....	.....	.....	.....	116	.....	.....	.....	.....	.....	.....	.....	.....
40	8.0	.....	.....	.....	8		.....	.....	.....	.....	.....	.....	.....	.....
41	756	.....	.....	762	950	1080	.....	942	772	.....	760	.....	750	.....
42	.....	365	.....	418	480	.....	508	.....	428	.....	432	.....	435	.....
43	.....	.....	.....	58	60	.....	70	.....	59	.....	57	.....	56	.....
44	.....	.....	.....	.....	.....	.....	.....	.....	.....	344	.....	.....	.....	.....
45	.....	.....	.....	.....	.....	.....	18	.....	.....	.....	.....	.....	.....	.....
47	.....	.....	.....	.....	.....	.....	148	.....	.....	.....	.....	.....	.....	.....
48	138	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	135	.....	.....	.....	.....	.....	164	.....	.....	.....	.....	.....	.....	.....
50	284	.....	.....	292	360	.....	314	.....	275	.....	255	.....	262	.....
52	.....	.....	13	.....	.....	.....	58	.....	.....	.....	.....	.....	.....	.....
53	.....	.....	.....	.....	.....	.....	2260	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	312	.....	.....	.....	.....	.....	.....	.....
56	.....	.....	.....	.....	.....	.....	288	.....	.....	.....	.....	.....	.....	.....
57	.....	.....	.....	.....	.....	.....	264	.....	.....	.....	.....	.....	.....	.....
58	.....	.....	.....	.....	.....	.....	162	.....	.....	.....	.....	.....	.....	.....
59	.....	.....	.....	.....	.....	.....	138	.....	.....	.....	.....	.....	.....	.....

TABLE 11 (Continued)

Well No.	Sept. 1919	1927	1929	1939	Field 1939	Aug. 1940	Sept. 1940	Oct. 1940	June 1942	Sept. 1942	Dec. 1942	June 1943	July 1943	July 1944
61	.....	.....	.....	500	620	.....	602	.....	518	.....	510	.....	510	.....
62	.....	.....	.....	.....	.....	.....	146	.....	.....	.....	.....	.....	.....	.....
63	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....
64	147	.....	.....	.....	.....	.....	178	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	138	.....	.....	.....	.....	.....	.....	.....
66	.....	.....	.....	135	175	.....	144	.....	.....	.....	.....	.....	.....	.....
67	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....
68	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....
69	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....
70	7.7	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....
71	.....	.....	.....	76	.....	.....	146	.....	.....	.....	.....	.....	.....	.....
72	.....	.....	.....	.....	.....	.....	76	.....	.....	.....	.....	.....	.....	.....
73	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....
74	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....
75	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....
76	.....	.....	.....	.....	.....	.....	38	.....	.....	.....	.....	.....	.....	.....
77	.....	.....	.....	40	.....	.....	52	.....	.....	.....	.....	.....	.....	.....
78	.....	.....	.....	.....	.....	.....	192	.....	.....	.....	.....	.....	.....	.....
80	.....	.....	.....	.....	.....	.....	524	.....	.....	.....	.....	.....	.....	.....
81	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....
82	.....	.....	.....	.....	.....	.....	160	.....	.....	.....	.....	.....	.....	.....
83	.....	.....	.....	.....	.....	.....	24	.....	.....	.....	.....	.....	.....	.....
84	.....	.....	.....	550	690	.....	562	.....	558	.....	.....	.....	552	.....
85	.....	.....	.....	282	385	.....	294	.....	291	.....	290	.....	295	.....
87	.....	.....	.....	.....	.....	.....	210	.....	.....	.....	.....	.....	.....	.....
88	.....	.....	.....	.....	.....	.....	170	.....	.....	.....	.....	.....	.....	.....
89	.....	.....	.....	.....	.....	.....	208	.....	.....	.....	.....	.....	.....	.....
90	.....	.....	.....	.....	.....	.....	226	.....	.....	.....	.....	.....	.....	.....
91	.....	.....	.....	71	.....	.....	88	.....	.....	.....	.....	.....	.....	.....
92	.....	.....	.....	.....	.....	.....	96	.....	.....	.....	.....	.....	.....	.....
95	.....	.....	.....	.....	.....	.....	200	.....	.....	.....	.....	.....	.....	.....
96	.....	.....	.....	.....	.....	.....	162	.....	.....	.....	.....	.....	.....	.....
97	.....	.....	.....	.....	.....	.....	244	.....	.....	.....	.....	.....	.....	.....
98	.....	.....	.....	.....	.....	.....	16	.....	.....	.....	.....	.....	.....	.....
99	.....	.....	.....	.....	.....	.....	14	.....	.....	.....	.....	.....	.....	.....
100	.....	.....	.....	.....	.....	.....	14	.....	.....	.....	.....	.....	.....	.....
101	.....	.....	.....	.....	.....	.....	374	.....	.....	.....	.....	.....	.....	.....
102	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....
103	.....	.....	.....	.....	.....	.....	14	.....	.....	.....	.....	.....	.....	.....
104	.....	.....	.....	137	.....	.....	142	.....	.....	.....	.....	.....	.....	.....
105	.....	.....	.....	125	.....	.....	212	.....	.....	.....	.....	.....	.....	.....
106	.....	.....	.....	171	.....	.....	218	.....	.....	.....	.....	.....	290	.....
107	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	310	140	.....
109	.....	.....	.....	.....	.....	.....	564	.....	.....	.....	.....	.....	.....	.....
110	.....	.....	.....	435	.....	.....	456	.....	.....	.....	.....	.....	.....	.....
111	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....
112	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
113	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	111	116

*Average of two determinations

Analysts: 42 (1927), 52 (1929), 61, 104, 105, 106 (1939), 107 (June 1943), Mississippi State Board of Health

STONE COUNTY

AREA, 448 SQUARE MILES. POPULATION, 6,155 (CENSUS OF 1940)

GENERAL FEATURES

Stone County is in the north-central part of the coastal area. The county seat and largest town, Wiggins (Population 1,141), is 35 miles north of Gulfport. The county lies entirely within the

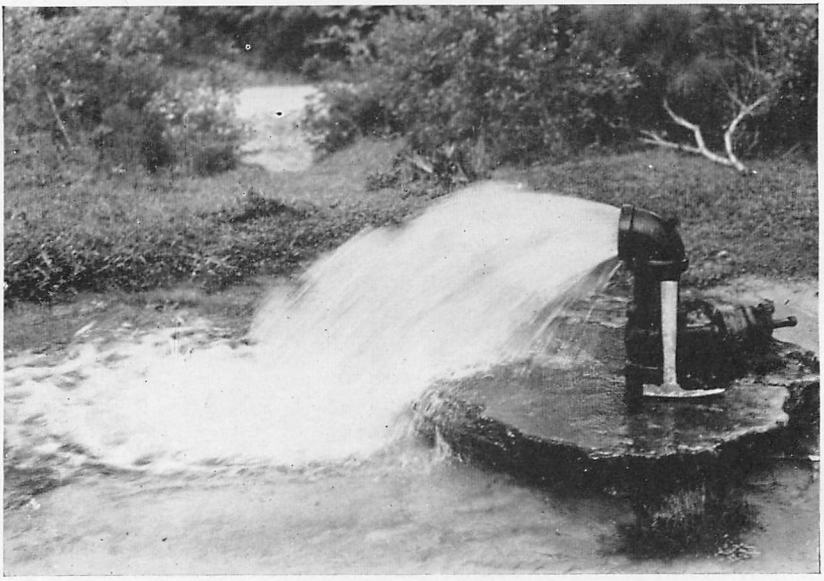


Figure 20.—A continuously flowing well in a sand of Pascagoula age, George County.

long leaf pine hills and except for stream alluvium along Red Creek is underlain with deposits of the Citronelle formation, and clays and sands of the Pascagoula and Graham Ferry formations. The county has a relief of some 290 feet, between 70 and 360 feet, the lowest elevation being along the flanks of Black and Red Creeks at the eastern edge of the county. The highest elevations are along the crests of the Citronelle ridges north of Wiggins and in the northwestern corner of the county.

GROUND-WATER SUPPLIES

The ground-water resources of Stone County are practically undeveloped. Electrical logs of oil prospects wells which are known

throughout the county show that thick and extensive water-bearing sands and gravels of the Pascagoula and Hattiesburg formations and, to a minor extent, of the Catahoula sandstone, underlie the county. The largest supply in the county is at Wiggins where average daily production from sandy gravel or gravelly sand in the lower part of the Citronelle formation is 230,000 gallons a day. Flowing wells are

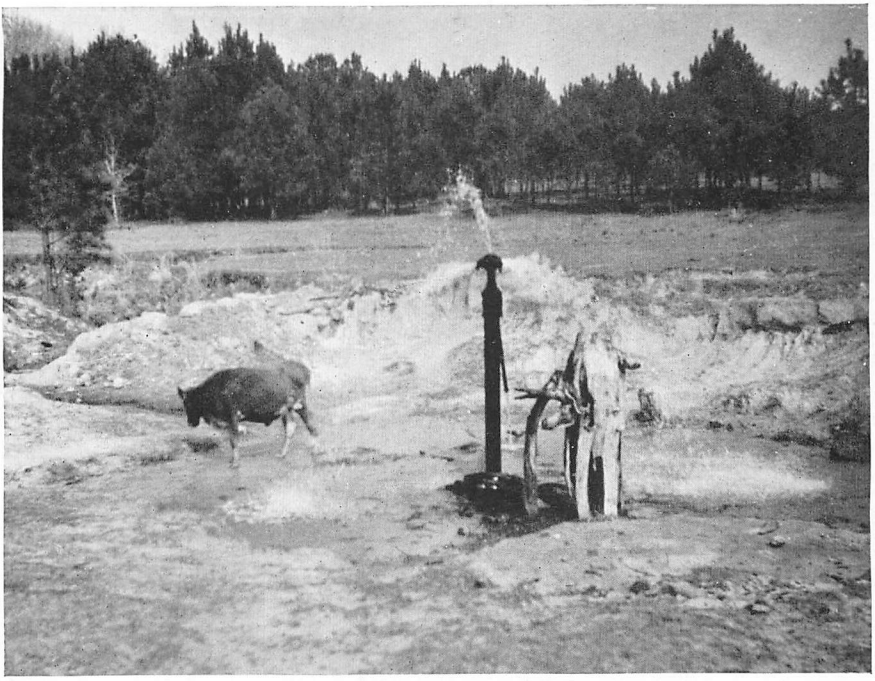


Figure 21.—An old well whose jetting water from sands of the Graham Ferry formation has scoured out an extensive pit, Hancock County. Photograph by H. D. Padgett, Jr.

obtained along the lowlands adjacent to Red Creek, and a few other wells scattered throughout the county obtain water from this formation.

The quality of water from wells in Stone County was already determined (Table 10). Dissolved solids are low and the water appears suitable for most purposes.

WASTE OF GROUND WATER

A substantial part of the water from flowing artesian wells in the coastal area is wasted. The most common and most apparent waste is at the well tops; it includes the practice of allowing wells to discharge freely into ditches or swamps (Figures 20, 21), of failing to repair wells leaking profusely but still retaining sufficient pressure to transmit the water through short distributary pipes, and of mu-

Figure 22.—A well drilled in 1944 and equipped for continuous flow—a wasteful practice for the well should have been completed with the correct screen, Hancock County.

nicipalities allowing continuous flow into surface storage with intermittent pumping into elevated storage or water mains. Many wells are constructed with a continuous discharge outlet (Figure 22), a necessity in a well improperly constructed where sand is likely to accumulate in the casing. However, a well that is properly con-

structed and completed with the correct screen does not need a "bleeder," and the water may be turned on or off at will.

Other more obscure wasteful practices include the improper setting of screens in more than one sand, thereby dissipating the water pressure of a sand into a sand under lower pressure, especially harmful where the sand with the higher pressure contains harmful quantities of brackish water; and selling of water by municipalities at flat rates without metering, so that consumers feel no obligation to

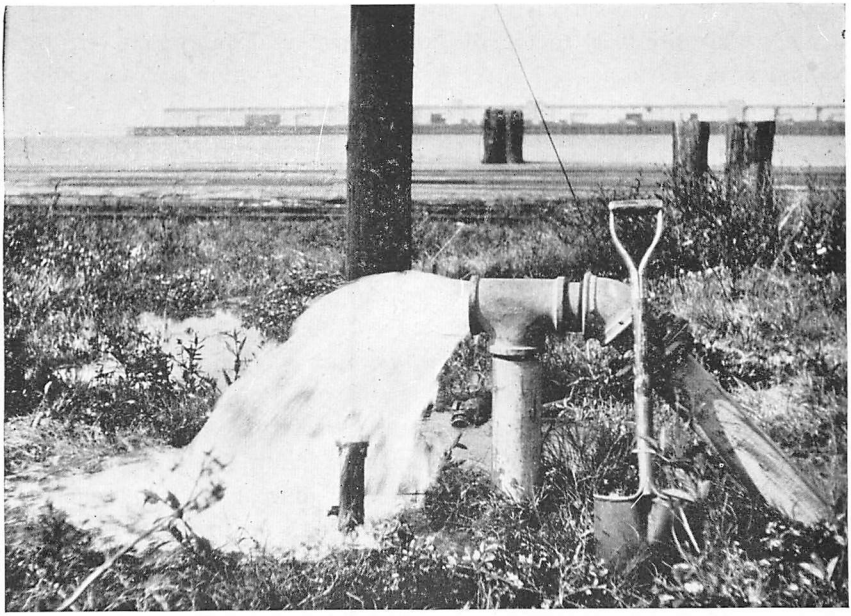


Figure 23.—A flowing well (Harrison 172) uncapped to measure yield and temperature on the pier at Gulfport, Harrison County. The water comes from the sands of the Graham Ferry formation.

conserve water. Much of the ground-water waste has resulted from a former belief that the supply is inexhaustible, an assumption now generally discredited, because the decline of water levels, particularly in the Graham Ferry formation, has been sufficient to prevent flow through water heaters and outlets several feet above the land surface. Indeed, wells have ceased flowing at the land surface in some areas.

Inasmuch as discharge from each well lowers the natural artesian pressure around the well, conservation of flow also maintains

the pressure. As the number of wells increases in the coastal area the pressure declines, until it is able to raise the water only to the land surface (provided no pumps are used) thereby diminishing waste.

SALT-WATER ENCROACHMENT

Although yields from flowing wells have declined as a result of pressure decrease, water levels have not dropped to depths comparable to the limit of lift of the modern deep well pump. Consequently the limiting factor of ground-water development in the coastal area of Mississippi is the danger of salt-water encroachment.

The danger of salt-water encroachment and destruction of the fresh-water supply are present in the sands along the Mississippi Gulf Coast. Salt water may enter a water-bearing sand either from the Gulf or from beds containing brines of diverse origin—the so-called connate waters which underlie the area. A measure of the amount of mixture from either source is the change in chloride content as shown by repeated analyses (Tables 11, 12). The determination of source is more difficult because of chemical changes in the fresh water involving base-exchange and other relations with the minerals in contact with the water. Present sea water contains about five times as much magnesium as calcium (only the concentration of salts in sea water changes from place to place), whereas waters, long-trapped or long-moving through sediments, are likely to contain more calcium than magnesium, which is the condition of the water analyzed from the coastal area (Tables 5-10).

The relations, where fresh water abuts against sea water, are well established, the fresh water resting on the sea water without much diffusion because of the greater specific gravity of the sea water. Where the average specific gravity of sea water is 1.025, a column of 41 feet of fresh water is needed to balance a column of 40 feet of sea water. Thus for each fluctuation in fresh-water head of 1 foot, there is a vertical change of about 40 feet in the fresh-water and sea-water contact. Fortunately this change is usually transmitted slowly because of friction head loss between the point of fresh-water discharge and the salt-water contact. The original fresh-water head in the sands of the Pascagoula and Graham Ferry formations along the coast was 80 to 100 feet above mean sea level,

sufficient to keep the salt-water contact in the sands at 3,200 to 4,000 feet beneath the sea. The pressure-indicating surface is now about 15 feet above datum at Gulfport; the immediate inference is, therefore, that the salt-water contact should be at a depth of 600 feet. Because there is no evidence of salt-water intrusion beneath Gulfport in the wells at depths of 1,200 feet, it would appear that there is no hydrologic connection to the Gulf from sand of the Pascagoula formation at that place, or the connection is at a sufficiently shallow depth to cause discharge into the Gulf as submarine springs or salvaged discharge, or the distance to the contact is so great that insufficient time has elapsed for the salt water to reach Gulfport near the Chandeleur Islands. The shallow floor south of Ship Island and adjacent to it is covered with a mixture of mud and sand; and gray and white sand and shells extend over a large area of shallow water eastward from about the longitude of Pascagoula. Submarine exposures of aquifers would be limited to this area, and the high pressures in wells on Horn Island imply that any substantial submarine discharge would be many miles south of the Island. Thus, in general it appears that direct hydrologic connection to the deeper aquifers along the coast is unlikely, although a gradient to the southwest requires leakage, possibly through masses of water-saturated mud, a movement not likely to be reversed because of the mud and the distance to the required depths of salt water. The pumpage of salt water from wells 155 feet deep at Moss Point seems almost certainly a local condition where the tongue of gravel of the Citronelle formation is hydrologically connected to salt water in the Pascagoula River estuary.

The other source of salt water, from connate or long-trapped brines, seems the more logical derivation of the high chlorides in the deeper wells in Jackson County and in the sand of the Pascagoula formation at Biloxi. The earliest analyses show substantial quantities of chloride, some of them larger than the most recent determinations, and, in general, the chloride content is greater in the deeper aquifers and decreases toward the west. Water containing appreciable chloride from a well in Pascagoula formation at Ocean Springs (Jackson 41) differs, according to Margaret D. Foster,[63] from a theoretical mixture of sea water and ground water considerably

lower in chloride from the same stratigraphic position but updip at Moss Point (Jackson 64). The greatest concentration of chloride was 2,260 parts per million from an 1,800-foot well at Moss Point, the deepest water well on the coast, which was reported by the drillers in 1926 to yield warm salt water under a pressure of 35 pounds at the surface. The chloride content of other artesian aquifers in the vicinity of Pascagoula and Moss Point varies considerably from well to well. Samples of water from the deeper of two sands in the upper part of the Pascagoula formation at depths of about 1,200 feet at Ocean Springs contained chloride ranging from 344 to 1,080 parts per million. The higher amount was obtained from a sample collected during a late summer drought, the lower content of chloride generally in the spring. It is believed that leaks in the casings permit water from shallower aquifers to enter wells under normal conditions, but during continued droughts the withdrawal of large amounts of water from near-by wells so reduces local pressure in the shallower aquifers that conditions are reversed. That there is a hydrologic connection is indicated by an increase in chloride content in near-by wells drilled to the shallowest sand of the Pascagoula formation at depths of about 800 feet during periods of heavy withdrawal. Thus the chloride content in a well in the town of Ocean Springs (Jackson 7) increased from 76 to 146 parts per million at the time of the drought. Measurements on other wells to the uppermost Pascagoula aquifer show that the effect of leakage was only local, because wells within 1/4 mile of the city well showed no increase in chloride. Farther west at Biloxi, water from the Pascagoula formation contains as much as 395 parts per million of chloride, but the quantity decreases rather abruptly to 151-170 parts per million in the western outskirts of Biloxi. Still farther west it decreases to less than 10 parts per million at the Edgewater Gulf Hotel (Harrison 109) and at the wells in Gulfport (Table 12). The distribution of chlorides is in keeping with the idea that the western part of the area stood at a level considerably above the present surface before Pamlico time and consequently aided the flushing of the connate salt water from the aquifers.

TABLE 12

CHLORIDE CONTENT OF SAMPLES OF WATER FROM WELLS IN HARRISON COUNTY
(PARTS PER MILLION)
ANALYZED BY U. S. GEOLOGICAL SURVEY, EXCEPT AS INDICATED

Well No.	1914 or before	Aug.-Sept. 1919	July 1937	1938	May 27 1939	June 27 1939	Sept.-Oct. 1940	May-June 1942	Sept. 7 1942	Dec. 1942	Feb. 1943	July 23-24 1943	June 5 1944	July 1944	Aug. 1944
13	.....	.....	.....	.....	16	2	.....	5	.....	4	.....	4	.....	.....	.....
19	.....	.....	.....	.....	16	3	.....	5	.....	4	.....	4	.....	.....	.....
23	.....	.....	.....	.....	10	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....
26	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....
32	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
36	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....
37	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....
38	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....
45	.....	.....	.....	.....	.....	.....	96	37	.....	.....	.....	.....	.....	.....	.....
48	.....	.....	.....	.....	16	2	.....	4	.....	3	.....	4	.....	.....	.....
53	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....
54	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	100	.....	62	.....	.....	.....	.....	.....	.....	.....	.....
56	.....	.....	.....	.....	.....	.....	74	65	.....	62	.....	63	.....	.....	.....
57	.....	.....	.....	.....	.....	.....	76	64	.....	64	.....	66	.....	.....	.....
58	.....	.....	.....	.....	.....	.....	56	53	.....	53	.....	53	.....	.....	.....
59	.....	.....	.....	.....	60	.....	24	4	.....	22	.....	22	.....	.....	.....
63	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	7	.....	.....
64	.....	.....	.....	.....	.....	.....	.....	5	4	4	.....	4	7	5	6
65	.....	.....	.....	.....	.....	.....	.....	8	.....	7	.....	6	9	7	8
66	.....	.....	.....	.....	.....	.....	.....	5	4	4	.....	4	7	5	8
67	.....	.....	.....	.....	.....	.....	.....	5	7	5	.....	4	7	5	6
68	.....	.....	.....	.....	.....	.....	.....	4	4	4	.....	4	7	4	8
69	.....	.....	.....	.....	.....	.....	.....	5	.....	3	.....	.....	.....	.....	.....
84	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
85	.....	.....	.....	.....	.....	.....	.....	.....	4.2	.....	.....	4	.....	.....	.....
87	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
89	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
97	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
98	.....	5.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
102	.....	.....	.....	.....	16	9	.....	14	.....	12	.....	12	.....	.....	.....
103	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
106	.....	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
109	.....	.....	.....	.....	14	.....	6	5	.....	5	.....	4	.....	.....	.....
113	.....	.....	.....	.....	.....	.....	.....	5	.....	4	.....	.....	.....	.....	.....
114	.....	.....	.....	.....	.....	.....	8	7	.....	.....	.....	6	9	.....	.....
115	.....	.....	.....	.....	.....	.....	.....	.....	162	.....	.....	.....	.....	.....	.....
118	.....	.....	.....	.....	12	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
119	.....	.....	.....	.....	.....	.....	176	151	152	.....	.....	152	.....	.....	.....
120	.....	5.3	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....
121	.....	.....	.....	125	.....	.....	456	390	355	.....	.....	395	.....	.....	.....
122	.....	.....	.....	.....	.....	.....	66	.....	.....	.....	.....	.....	.....	.....	.....
123	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
125	.....	.....	.....	1	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....
126	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
127	.....	20	.....	.....	.....	.....	108	137	.....	111	.....	.....	.....	.....	.....
128	5.9	.....	.....	.....	.....	.....	32	.....	.....	.....	.....	.....	.....	.....	.....
129	.....	.....	.....	.....	.....	.....	186	183	.....	183	.....	.....	.....	.....	.....
131	.....	4	.....	.....	14	.....	6	6	.....	5	.....	6	.....	.....	.....
132	.....	.....	.....	.....	110	72	82	73	.....	73	.....	72	.....	.....	.....
136	.....	.....	.....	.....	.....	.....	98	.....	.....	.....	.....	.....	.....	.....	.....
142	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
143	.....	8	.....	.....	.....	.....	.....	.....	.....	4	.....	4	.....	.....	.....
144	.....	.....	.....	.....	12	.....	.....	3	.....	3	.....	4	.....	.....	.....
146	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....
147	.....	.....	6	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....
149	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....
150	.....	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
152	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
154	.....	5	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....
160	.....	5	.....	.....	.....	.....	.....	.....	7.8, 8.9	.....	.....	.....	.....	.....	.....
161	.....	.....	.....	.....	.....	.....	.....	.....	7.8, 8.0	.....	.....	.....	.....	.....	.....
162	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.6	.....	.....	.....	.....
169	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	6	.....	.....	.....
171	.....	.....	.....	.....	18	.....	.....	8	.....	6	.....	6	.....	.....	.....
175	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
176	.....	4.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
189	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
190	.....	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
191	.....	.....	.....	.....	.....	42	.....	.....	.....	.....	.....	.....	.....	.....	.....
201	.....	10	.....	.....	.....	.....	.....	.....	.....	10	.....	10	14	.....	.....
202	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	6	9	.....	.....
203	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22	.....	.....
204	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	.....	.....

Analysts: 63-68 (1944), 89, 114 (1944), 121 (1938), 125 (1938), 126, 143 (1937), 201-202 (1944), 203, 204, Mississippi State Chemical Laboratory; 123, 128, Mississippi Agr. Exper. Sta. Bull. 89, p. 71, 1905; 160 (8.9), 161 (8.0), 162, Mississippi State Board of Health. The August 1944 determinations from wells 64-68 were made by the Post Engineer, U. S. Army, Keesler Field

All determinations from samples collected in 1919 and prior are from U. S. Geol. Survey Water-Supply Paper 576, p. 199, 1928

CONSERVATION OF GROUND WATER

The following ways are suggested to conserve artesian water and to prevent excessive decline in pressure:

(1) Wells no longer used should be effectively capped or plugged.

(2) Wells, seldom used but completely cased with screens against the water sands, should be fitted with automatic closing taps; and surface leaks should be stopped. Wells completed with slotted pipe or incompletely cased should have the overflow reduced.

(3) Several old wells which are defectively cased, and where water rises on the outside of the casing, should be repaired. Probably most of the defective casing is within 50 feet of ground level and accordingly repair by any of the recognized methods should not be exceedingly costly, although the wells known to penetrate into the deeper sands where high chlorides have been measured, should be sealed to prevent subsurface leakage into the fresh-water sands.

(4) Municipal water wells are generally properly finished and, therefore, may be fitted with valves regulating the discharge into surface reservoirs to supply the need. Some wells are fitted with valves for partial closure but are allowed to flow openly because of the belief that restriction will cause sanding of the well. This is not true where a well is properly finished; but, where there is some question about sanding, the well top may be removed periodically and the well allowed to flush for a few hours.

(5) Finally, outlets from municipal mains should be metered so that a fair charge, based on actual consumption, can be assessed by the municipal governments.

REFERENCES

1. Lowe, E. N., Economic geography of Mississippi: p. 104, University, Mississippi, mimeographed by the author, 1928.
2. 16th census, U. S. Dept. of Commerce, 1941.
3. Wailes, B. L. C.. Agriculture and geology of Mississippi: p. 22, Jackson, Mississippi, 1854.
4. Idem, p. 22.
5. Johnson, L. C., The Miocene group of Alabama: Science, Vol. 21, p. 90, Feb. 17, 1893.
6. Marbut, C. F., Soil survey of Harrison County, Mississippi: U. S. Dept. Agri., Bur. Chemistry and Soils, No. 7, Ser. 1924, pp. 12-13, 1928.
7. Cooke, C. W., Gardner, Julia, and Woodring, W. P., Correlation of the Cenozoic formations of the Atlantic and Gulf Coastal Plain and the Caribbean region: Geol. Soc. American Bull., Vol. 54, Chart 12, pp. 1713-1724, Nov. 1, 1943.
8. Lobeck, A. K., Geomorphology: p. 178, New York and London, 1939.
9. Penfound, W. T., and O'Neill, M. E., The vegetation of Cat Island, Mississippi: Ecology, Vol. 15, No. 1, pp. 3-6, Jan. 1934.
10. Gravell, D. W., and Hanna, M. A., Subsurface Tertiary zones of correlation through Mississippi, Alabama, and Florida: Am. Assoc. Petroleum Geologists Bull., Vol. 22, No. 8, Figs. 4-5, pp. 989, 994-995, Aug. 1938.
11. Cooke, C. W., and others, op. cit., pp. 1713-1724.
12. McGlothlin, J. T., General geology of Mississippi: Am. Assoc. Petroleum Geologists Bull., Vol. 28, No. 1, p. 61, Jan. 1944.
13. Brown, G. F., Geology and ground-water resources of the Camp Shelby area: Mississippi Geol. Survey Bull. 58, Forrest County well 52 on Plate 2, 1944.
14. Gravell, D. W., and Hanna, M. A., op. cit., Figs. 4-5, pp. 994-995.
15. Idem, Fig. 1, p. 987.
16. Mincher, A. R., The fauna of the Pascagoula formation: Jour. Paleontology, Vol. 15, No. 4, pp. 341-347, July 1941.
17. Stephenson, L. W., Logan, W. N., and Waring, G. A., The ground-water resources of Mississippi: U. S. Geol. Survey Water-Supply Paper 576, p. 233, 1928.
18. Howe, H. V., and McGuirt, J. H., Salt domes of Plaquemines and St. Bernard Parishes: Louisiana Geol. Survey Bull. 8, p. 234, 1936.
19. Halbouty, M. T., Geology and geophysics of southeast flank of Jennings Dome, Acadia Parish, Louisiana, with special reference to overhang: Gulf Coast oil fields, a symposium: Am. Assoc. Petroleum Geologists, p. 967, Tulsa, Oklahoma, 1936.
20. Harris, G. D., Oil and gas in Louisiana: U. S. Geol. Survey Bull. 429, pp. 56-57, 1910.
21. Johnson, L. C., op. cit., p. 90.

22. Mincher, A. R., op. cit., p. 339.

23. Howe, H. V., and McGuirt, J. H., op. cit., p. 234.

24. Foster, V. M., The salt-water problem, coastal plain of Mississippi: unpublished memorandum of U. S. Geol. Survey, 1941.

25. Cole, W. S., The Pliocene and Pleistocene foraminifera of Florida: Florida Geol. Survey Bull. 6, p. 14, 1931.

26. Vernon, R. O., Geology of Holmes and Washington Counties, Florida: Florida Geol. Survey Bull. 21, Table 7, pp. 122-127, 1942.

27. Cole, W. S., Stratigraphy and micropaleontology of two deep wells in Florida: Florida Geol. Survey Bull. 16, p. 16, 1928.

28. Bridges, R. C., Shallow Pleistocene marine shell stratum in Livingston Parish, Louisiana: Jour. Paleontology, Vol. 13, No. 6, pp. 615-616, Nov. 1939.

29. Fisk, H. N., Geology of Avoyelles and Rapides Parishes: Louisiana Geol. Survey Bull. 18, p. 175, 1940.

30. Frink, J. W., Subsurface Pleistocene of Louisiana: Louisiana Geol. Survey Bull. 19, p. 370, 1941.

31. Howe, H. V., and McGuirt, J. H., op. cit., pp. 220-222.

32. Cogen, W. M., Heavy-mineral zones of Louisiana and Texas Gulf Coast sediments: Am. Assoc. Petroleum Geologists Bull., Vol. 24, p. 2099, Dec. 1940.

33. Idem, p. 2101.

34. Dohm, C. F., Petrography of two Mississippi River subdeltas: Louisiana Geol. Survey Bull. 8, pp. 378-379, 1936.

35. Brown, G. F., op. cit.

36. Brown, G. F., and Guyton, W. F., Geology and ground-water supply at Camp Van Dorn: Mississippi Geol. Survey Bull. 56, 1943.

37. Marbut, C. F., op. cit., p. 13.

38. Richards, H. G., Marine Pleistocene of the Gulf Costal Plain, Alabama, Mississippi, and Louisiana: Geol. Soc. American Bull., Vol. 50, p. 304, Feb. 1939.

39. Stephenson, L. W., and others, op. cit., pp. 56-59.

40. Gravell, D. W., and Hanna, M. A., op. cit., Figs. 3-5, pp. 993-995.

41. Woollard, G. P., An interpretation of gravity-anomalies in terms of local and regional geologic structures: Nat. Research Council Trans., Am. Geophys. Union, 17th Ann. Meeting of Sec. of Geodesy, Fig. 4, p. 71, Apr. 30, 1936.

42. Barton, D. C., Ritz, C. H., and Hickey, Maude, The Gulf Coast geosyncline: Am. Assoc. Petroleum Geologists Bull., Vol. 17, pp. 1446-1458, Dec. 1933.

43. Gravell, D. W., and Hanna, M. A., op. cit., pp. 994-995.

44. Frink, J. W., op. cit., p. 417.

45. Gravell, D. W., and Hanna, M. A., op. cit., pp. 993-995.

46. Idem, pp. 993-995.

47. Russell, R. J., and Russell, R. D., Mississippi River delta sedimentation: Recent marine sediments, a symposium: Am. Assoc. Petroleum Geologists, pp. 159-160, Tulsa, Oklahoma, 1939.

48. Kniffen, F. B., A preliminary report on the Indian mounds and middens of Plaquemines and St. Bernard Parishes: Lower Mississippi River delta: Louisiana Geol. Survey Bull. 8, pp. 414-417, 1936.

49. Russell, R. J., Physiography of lower Mississippi River delta: Louisiana Geol. Survey Bull. 8, p. 112, 1936.

50. Russell, R. J., and Russell, R. D., op. cit., p. 160.

51 Brown, C. S., Archeology of Mississippi: Mississippi Geol. Survey, pp. 30-33, University, Mississippi, 1926.

52. Halbert, H. S., The small Indian tribes of Mississippi: Mississippi Historical Soc., Vol. 5, pp. 302-303, 1902.

53. Rowland, Dunbar, and Sanders, A. G., Mississippi provincial archives, 1729-1740: Vol. 1, Plate opposite p. 360, 1927.

54. Frink, J. W., op. cit., pp. 370-371.

55. Fisk, H. N., op. cit., pp. 155-172.

56. Wailes, B. L. C., op. cit., pp. 262-263.

57. Bowman, Isaiah, Well-drilling methods: U. S. Geol. Survey Water-Supply Paper 257, p. 26, 1911.

58. Johnson, L. C., and Eckel, E. C., Mississippi: Contributions to the hydrology of eastern United States (Mississippi): U. S. Geol. and Irr. Paper 102, pp. 334-349, 1903.

59. Chemical test made in 1902 showed oil at shallow depth on Gulf Coast: Mississippi Oil Review, Jackson, Mississippi, Nov. 25, 1939.

60. Johnson, L. C., and Eckel, E. C., op. cit., pp. 338-342.

61. Idem, pp. 342-343.

62. Stephenson, L. W., and others, op. cit., pp. 234-235.

63. Foster, M. D., Base-exchange and sulphate reduction in salty ground waters along Atlantic and Gulf Coasts: Am. Assoc. Petroleum Geologists Bull., Vol. 26, Table 3 and Fig. 4, pp. 842-845, May 1942.

DRILLERS LOGS OF WELLS IN THE COASTAL AREA IN MISSISSIPPI

M. H. Allman, 10 Miles Southwest of Lucedale

George County 23*
Altitude: 152 feet — Driller: Paul B. Kinch

	Thick. feet	Depth feet
Pascagoula formation		
Clay, sandy	10	10
Clay, blue	90	100
Mud, red, and sand	20	120
Slush, red sandy	25	145
Mud, blue; slightly water bearing	10	155
Material resembling hair (peat?)	15	170
Wood or low grade of coal (lignite?)	20	190
Sand, black water-bearing	13	203

*U. S. Geol. Survey Water-Supply Paper 576, p. 171, 1928

R. L. Kirkland Naval Store Company

George County 30
Altitude: 80 feet — Driller: Robert Davis

	Thick. feet	Depth feet
Stream alluvium		
Surface sand	20	20
Pascagoula formation		
Marl, blue	120	140
Sand, white	5	145

Walter J. Green, 3 Miles Northeast of Clarence

George County 36*
Altitude: 39 feet — Driller: Paul B. Kinch

	Thick. feet	Depth feet
Stream alluvium		
Sand, water-bearing	30	30
Pascagoula formation		
Clay, blue; thin layer of rock at base	60	90
Sand, water-bearing	3	93

*U. S. Geol. Survey Water-Supply Paper 576, p. 171, 1928

EPHRIAM CUEVAS, 1/4 MILE SOUTHEAST OF STANDARD POST OFFICE

Hancock County 1a*
Altitude: 175 feet — Driller:

Citronelle formation	Thick. feet	Depth feet
Sand, red	10	10
Sand, white	10	20
Clay, blue pipe	10	30
Gravel, water-bearing		

*U. S. Geol. Survey Water-Supply Paper 576, p. 186, 1928

JORDAN RIVER LUMBER COMPANY AT KILN

Hancock County 20*
Altitude: — Driller: John A. Sutter

Graham Ferry formation	Thick. feet	Depth feet
Clay, yellow	55	55
Sand, gray	6	61
Clay, yellow	24	85
Greensand	10	95
Clay, blue	9	104
Sand, water-bearing	26	130
Clay, blue	5	135
Sand, water-bearing	15	150
Mud, gray	10	160
Sand, water-bearing	30	190
Clay, hard blue	10	200
Sand, water-bearing	40	240
Clay, blue	25	265
Sand and gravel, water-bearing	39	304
Clay, blue	21	325
Sand, water-bearing	25	350
Clay, hard blue	10	360
Sand, water-bearing	10	370
Clay, blue	16	386
Sand, water-bearing	30	416
Clay, hard blue	24	440
Sand, water-bearing	30	470
Clay, hard blue	25	495
Sand and gravel, water-bearing	65	560

*U. S. Geol. Survey Water-Supply Paper 576, p. 185, 1928

PEERLESS OYSTER COMPANY, 1 MILE NORTH OF BAY ST. LOUIS

Hancock County 32a*
Altitude: 0 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent deposits		
Clay, blue sandy	10	10
Pamlico sand		
Sand, white	50	60
Citronelle formation		
Sand, yellow	35	95
Sand, white, and gravel	50	145
Graham Ferry formation		
Clay, green	15	160
Sand, gray	60	220
Clay, green	130	350
Sand, gray	20	370
Clay, green	280	650
Sand, water-bearing	40	690
Clay, blue	128	818
Sand, water-bearing	79	897

*U. S. Geol. Survey Bull. 264, p. 87, 1904

M. PITCHER AT BAY ST. LOUIS

Hancock County 42a
Altitude: 15± feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, yellow	10	10
Pamlico and Citronelle formations		
Sand, white	110	120
Gravel	40	160
Graham Ferrry formation		
Clay, hard green	190	350
Sand, gray	60	410
Clay, hard green	170	580
Sand, gray	60	640
Clay, green	305	945
Sand. water-bearing	105	1050

CHARLES SANGER

Hancock County 42b
Altitude: 25 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, white	20	20
Sand, yellow	20	40
Citronelle formation		
Clay, hard sandy	35	75
Sand and gravel, contains pebbles of quartz, chert, and sandstone	107	182
Graham Ferry formation		
Clay, hard green, contains pebbles probably from layer above	198	380
Sand, gray, probably glauconitic	140	520
Clay, green sandy	320	840
Sand, water-bearing	70	910

CITY OF BAY ST. LOUIS

Hancock County 60a
Altitude: 20± feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, yellow	10	10
Sand, white	10	20
Sand, brown	20	40
Citronelle formation		
Clay, green-gray	50	90
Sand and gravel; pebbles are mostly chert	90	180
Graham Ferry formation		
Clay, green	320	500
Sand, medium light-gray water-bearing	65	565
Clay, green-gray slightly sandy	240	805
Sand, coarse gray water-bearing	115	920

LOUISVILLE & NASHVILLE RAILROAD AT BAY ST. LOUIS

Hancock County 62a*
Altitude: 27 feet — Driller: Frank Sutter

	Thick. feet	Depth feet
Recent, Pamlico, and Graham Ferry deposits		
Clay, yellow	200	200
Clay, deep orange	30	230
Clay, blue	220	450
Sand, water-bearing	40	490
Clay, blue	260	750
Shell rock	1	751
Clay, blue	49	800
Sand, water-bearing	60	860

*Mississippi Agri. Exper. Sta. Bull. 89, p. 69, 1905

F. LOEBER, 1/2 MILE WEST OF BAY ST. LOUIS POST OFFICE

Hancock County 62b*
Altitude: Driller: Charles Sanger

	Thick. feet	Depth feet
Pamlico and Citronelle formations		
Not reported	117	117
Sand, white, and some gravel near top	56	173
Graham Ferry formation		
Clay, blue, with a seam of red clay near top	89	262
Greensand	1	263
Clay, blue	117	380
Sand	1	381
Not reported	149	530
Sand, fine	8	538
Clay, blue	118	656
Sand, water-bearing	13	669

*U. S. Geol. Survey Water-Supply Paper 576, p. 183, 1928

CHARLES SANGER, 1/4 MILE WEST OF BAY ST. LOUIS POST OFFICE

Hancock County 62c*
Altitude: Driller: Charles Sanger

	Thick. feet	Depth feet
Pamlico and Citronelle formations		
Not reported	279	279
Graham Ferry formation		
Clay, blue	23	302
Sand	9	311
Clay, blue	23	334
Greensand	19	353
Clay, blue	8	361
Sand, gray water-bearing	23	384

*U. S. Geol. Survey Water-Supply Paper 576, p. 184, 1928

A. METRANGER, 1,500 FEET WEST OF WAVELAND POST OFFICE

Hancock County 67a*
Altitude: Driller: Charles Sanger

Recent, Pamlico, Citronelle, and Graham Ferry deposits	Thick. feet	Depth feet
Not reported	245	245
Sand	1	246
Not reported	17	263
Sand	1	264
Not reported	6	270
Clay (?)	93	363
Sand	16	379
Clay	40	419
Sand, water-bearing	19	438

*U. S. Geol. Survey Water-Supply Paper 576, p. 184, 1928

PAUL CONRAD, 1 1/2 MILES WEST OF WAVELAND POST OFFICE

Hancock County 69a*
Altitude: 20± feet Driller: Charles Sanger

Recent and Pamlico deposits	Thick. feet	Depth feet
Not reported	75	75
Sand	27	102
Citronelle formation		
Clay, white	33	135
Sand, white	127	262
Graham Ferry formation		
Clay, hard yellow	29	291
Sand	5	296
Clay, blue	2	298
Greensand	27	325
Clay, blue	47	372
Sand, gray	14	386
Clay, blue	26	412
Sand, water-bearing	20	432

*U. S. Geol. Survey Water-Supply Paper 576, p. 185, 1928

LOUISVILLE & NASHVILLE RAILROAD AT LAKESHORE

Hancock County 86
Altitude: 10± feet

Driller:

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Clay, mottled blue	22	22
Sand, brown	18	40
Sand, fine, and mud	60	100
Sand, white	15	115
Clay, soft blue	80	195
Sand and Clay	50	245
Citronelle formation		
Clay, hard blue	50	295
Sand, gray, and gravel, water-bearing	110	405
Graham Ferry formation		
Clay, hard blue	145	550
Greensand, fine water-bearing	55	605
Sand and Clay	105	710
Clay, very hard blue	62	772
Sand, gray, and gravel, water-bearing	63	835

CHARLES L. HOPKINS

Hancock County 87
Altitude: 10± feet

Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Clay, hard yellow	15	15
Sand, white	15	30
Sand, brown	20	50
Sand, gray fine	20	70
Citronelle formation		
Mud, black, and shells	25	95
Sand, white, and gravel	95	190
Graham Ferry formation		
Clay, hard green	160	350
Sand, gray	150	500
Clay, green	65	565
Sand, gray	18	583
Clay, green	117	700
Sand	75	775

CHARLES SANGER

Hancock County 88
Altitude:

Recent and Pamlico deposits	Driller: Thick. feet	Depth feet
Not reported	40	40
Sand, fine gray	40	80
Sand, fine clayey, with fragments of shells	20	100
Sand, fine clayey	85	185
Sand, light-gray	35	220
Sand, pink, and wood fragments; contains fossils	20	240
Sand, gray, and wood fragments; contains fossils	20	260
Sand, fine gray micaceous; contains fossils	10	270
Not reported	18	288
Sand, white, and shells	19	307
Not reported	24	331

CIVILIAN CONSERVATION CORPS F-10

Harrison County 1
Altitude: 220 feet

Citronelle formation	Driller: Fred Sutter Thick. feet	Depth feet
Sand, yellow, and clay	110	110
Sand, white	20	130
Graham Ferry formation		
Clay	180	310
Sand, hard	30	340
Pascagoula (?) formation		
Clay, blue	139	479
Sand	40	519

CIVILIAN CONSERVATION CORPS F-10

Harrison County 1a
Altitude:

Graham Ferry formation	Driller: Fred Sutter Thick. feet	Depth feet
Clay, yellow	18	18
Sand and gravel	60	78
Clay, blue	248	326
Sand	23	349
Pascagoula (?) formation		
Clay, blue	155	504
Sand and gravel	75	579

Howison Lumber Company at Howison

Harrison County 1b*
Altitude: 178 feet — Driller: Frank Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Clay, red	100	100
Sand, white	100	200
Graham Ferry and Pascagoula formations		
Clay, blue	1200	1400
Sand, water-bearing	80	1480

*Mississippi Agr. Exper. Sta. Bull. 89, p. 77, 1905

U. S. Naval Depot 4

Harrison County 3a
Altitude: 105 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Citronelle formation		
Clay, sandy	45	45
Graham Ferry formation		
Clay, tough	130	175
Sand, water-bearing	73	248

U. S. Forest Service

Harrison County 7
Altitude: — Driller: Fred Sutter

	Thick. feet	Depth feet
Citronelle formation		
Clay, yellow	15	15
Sand, yellow, mixed with red mud	95	110

Success (Saucier) School

Harrison County 8
Altitude: — Driller: Fred Sutter

	Thick. feet	Depth feet
Citronelle formation		
Clay, yellow	17	17
Sand, yellow, mixed with red mud	87	104

Edward Hines Lumber Company Turpentine Still

Harrison County 11a
Altitude: Driller:

	Thick. feet	Depth feet
Graham Ferry frormation		
Clay, yellow	20	20
Clay, blue	20	40
Sand, white, and gravel	20	60
Clay, blue	140	200
Greensand, water-bearing	30	230
Pascagoula formation		
Clay, hard blue	170	400
Sand, water-bearing	20	420
Clay, hard blue	110	530
Greensand, fine water-bearing	30	560
Clay, hard blue	20	580
Sand and gravel, water-bearing	31	611

Illinois Central Railroad at Wortham

Harrison County 13*
Altitude: 49 feet Driller: John A. Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Sand, silty yellow compact; contains mixture of very fine to medium coarse quartz grains	20	20
Sand, loose white medium-grained	10	30
Sand, soft yellow very fine; contains a mixture of medium coarse grains	80	110
Sand, loose gray fine water-bearing; flows	10	120
Sand, very fine gray, or silt; contains a mixture of medium coarse grains; slightly indurated	10	130
Sand, loose gray fine water-bearing; flows	25	155
Sand or silt, compact green-gray argillaceous very fine	90	245
Sand, loose gray medium-grained; contains scattered black grains and fragments of brown lignite; gray and black pebbles of subangular chert up to 1/2 inch in length and several smaller pebbles of quartz	30	275
Pascagoula formation		
Clay, compact green-gray; contains fine sand	225	500
Sand, loose gray; contains scattered black grains; water-bearing; flows	90	590

*U. S. Geol. Survey Water-Supply Paper 576, p. 194, 1928

Gundlach Tower

Harrison County 14
Altitude: 178 feet Driller: V. C. Mickle, National Park Service

	Thick. feet	Depth feet
Citronelle formation		
Clay, red sandy	23	23
Sand	32	55
Graham Ferry formation		
Clay, red	13	68
Clay, red and yellow	17	85
Sand	14	99
Clay, red	14	113
Sand	10	123
Clay, red	17	140
Clay, sandy yellow	73	213
Clay, blue	24	237
Sand, very fine water-bearing	17	254
Cherty gravel mixed with blue-green clay	6	260
Pascagoula formation		
Clay, blue-green, mixed with very fine sand	20	280
Silt, light-green, trace of mica	10	290
Clay, green, small quantity of very fine quartz sand	20	310
Silt, light-green	20	330
Clay, light-green, small quantity of very fine sand	10	340
Clay, light-green	10	350
Clay, blue-green	10	360
Clay, blue-green, a few brown stains	50	410
Clay, blue-green, and medium sand	10	420
Clay, blue-green, and fine gravel	20	440
Sand, water-bearing	65	505
Clay, blue	35	540

Mrs. L. P. Ritchie at Wortham

Harrison County 15a
Altitude: Driller: Fred Sutter

	Thick. feet	Depth feet
Citronelle formation		
Sand, surface	8	8
Graham Ferry formation		
Sand and mud	41	49
Clay, blue	249	298
Sand	40	338
Pascagoula formation		
Clay, blue	134	472
Sand and gravel	52	524

U. S. Bureau of Fisheries

Harrison County 19
Altitude: 48 feet — Driller: Fred Sutter

Graham Ferry formation	Thick. feet	Depth feet
Mud	7	7
Sand and mud	67	74
Clay, blue	267	341
Sand	61	402

U. S. Army on Rifle Range

Harrison County 21a
Altitude: — Driller: Lane Central Company

Citronelle (?) formation	Thick. feet	Depth feet
Clay, red sandy	16	16
Clay and thin strata of sand	52	68
Graham Ferry formation		
Clay, blue	10	78
Soapstone	46	124
Sand, fine	44	168
Sandstone	15	183
Sand, coarse	32	215
Sand and clay	10	225
Shale, hard sandy	138	363
Sand, fine	5	368
Shale, hard	46	414
Shale	46	460
Sand, coarse	45	505

Gulf Coast Lumber Company at Lyman

Harrison County 23a*
Altitude: 96 feet — Driller:

Graham Ferry formation	Thick. feet	Depth feet
Clay, yellow	40	40
Clay, red	20	60
Clay, blue	240	300
Sand, water-bearing	30	330
Clay, blue	45	375
Sand and gravel, water-bearing	50	425
Clay	55	480

*Mississippi Agr. Exper. Sta. Bull. 89, p. 76, 1905

J. W. Havens at Nugent

Harrison County 31
Altitude: 54.8 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Low terrace deposits		
Sand, soft, and clay	15	15
Graham Ferry formation		
Clay, blue	434	449
Sand	77	526

Ben Richards at Lorraine

Harrison County 42
Altitude: — Driller: John A. Sutter

	Thick. feet	Depth feet
Stream alluvium		
Sand, surface	7	7
Graham Ferry formation		
Sand and mud	71	78
Clay, blue	218	296
Sand	53	349
Clay, blue	112	461
Sand and gravel	60	521

Southern Shellfish Company

Harrison County 61
Altitude: — Driller: Fred Sutter

	Thick. feet	Depth feet
Recent debris		
Shells	25	25
Citronelle formation		
Sand and mud	55	80
Graham Ferry and Pascagoula formations		
Clay, blue	725	805
Sand and gravel	60	865

KEESLER FIELD 1

Harrison County 64
Altitude: 20.45 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, surface	8	8
Graham Ferry formation		
Clay, sandy	70	78
Clay	10	88
Shale, sandy, and shells	68	156
Sand, fine	55	211
Shale, gummy	180	391
Sand, fine, and shale	60	451
Shale	78	529
Clay, sandy	60	589
Sand	35	624

KEESLER FIELD 4

Harrison County 65
Altitude: 18.59 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Top sand	20	20
Graham Ferry formation		
Gumbo and shells	41	61
Clay	65	126
Clay and sand	335	461
Clay, gumbo, and sand	115	576
Sand, fine	20	596
Sand	40	636

KEESLER FIELD 3

Harrison County 66
Altitude: 21.60 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Top sand	17	17
Graham Ferry formation		
Clay, gumbo, and shells	35	52
Clay and thin strata of sand	155	207
Gumbo, tough	15	222
Clay and sand	265	487
Clay	80	567
Sand, fine	45	612
Sand, good	34	646

KEESLER FIELD 2

Harrison County 67
Altitude: 21.59 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Top sand	20	20
Graham Ferry formation		
Gumbo and shells	50	70
Sand and clay	490	560
Sand, fine	30	590
Sand, fair	20	610
Sand	30	640

KEESLER FIELD 5

Harrison County 68
Altitude: 22.46 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Top sand	16	16
Graham Ferrry formation		
Gumbo	45	61
Clay and thin strata of sand	110	171
Gumbo	15	186
Sand	10	196
Clay and sand	370	566
Sand	57	623

GULFPORT FIELD 4-A

Harrison County 81
Altitude: 18.04 feet — Driller: Carloss Well Supply Company

	Thick. feet	Depth feet
Pamlico sand		
Loam, sandy	10	10
Graham Ferrry formation		
Clay, sandy	24	34
Sand and sandy clay	30	64
Gumbo, blue	36	100
Shale, sandy	32	132
Gumbo, blue	9	141
Shale, sandy	14	155
Gumbo	9	164
Shale, sandy	4	168
Sand	13	181
Shale, hard	10	191
Sand	13	204
Shale, sandy	15	219

	Thick. feet	Depth feet
Sand, hard, contains fairly abundant microcline, orthoclase, sanidine, and a few grains of calcic plagioclase; pyrite, magnetite, and epidote are found throughout the sample; the depth interval of 220 to 240 feet contains clear kyanite, zircon, garnet, tourmaline, hornblende, white and gray opaque minerals, colored zircon, and scarce ceylonite?; 241 to 264 feet contains clear zircon, light-colored opaque minerals, kyanite, staurolite, pink garnet, hornblende, rutile, tourmaline, and colored zircon; 261 to 284 feet contains colored zircon, kyanite, light-colored opaque minerals, staurolite, rutile, siderite, pink garnet and scarce hornblende; 285 to 306 feet contains light-colored opaque minerals, clear zircon, staurolite, kyanite, pink garnet, tourmaline, colored zircon, rutile, and siderite	87	306
Shale, hard	1	307
Shale and thin strata of sand	22	329
Sand	6	335
Shale, hard	27	362
Shale, sandy	7	369
Shale, hard	29	398
Sand, fair, contains magnetite, pyrite, clear zircon, epidote, colored zircon, kyanite, pink garnet, tourmaline, staurolite, rutile, hornblende, and ceylonite (?)	24	422
Shale, sandy	9	431
Gumbo, tough	14	445
Shale, hard	54	499
Sand, fine hard	12	511
Sand, medium fine	16	527
Shale, hard	41	568
Sand, medium gray water-bearing; contains abundant microcline, several grains of orthoclase and sanidine, oligoclase-andesine and albite, magnetite, epidote, pyrite, clear zircon, hornblende, kyanite, light-colored opaque minerals, garnet, colored zircon, tourmaline, and staurolite	90	658

Gulfport Field 4

Harrison County 82
Altitude: 14.40 feet — Driller: Carloss Well Supply Company

	Thick. feet	Depth feet
Pamlico sand		
Top sand and yellow clay	10	10
Graham Ferry formation		
Clay, blue	14	24
Sand and clay, mixed	13	37
Sand, water-bearing	23	60
Shale, blue	92	152
Shale, sandy	38	190
Sand	50	240
Shale, sandy	70	310

Shale, hard sandy	81	391
Sand, fair	22	413
Clay, blue	8	421
Sand, fair blue	14	435
Shale, hard blue	20	455
Sand, medium	23	478
Gumbo, blue, or clay	24	502
Sand, fine	8	510
Sand, coarse	9	519
Shale, hard gummy	41	560
Sand, coarse water-bearing	98	658
Clay, blue	3	661

Gulfport Field 3

Harrison County 83
Altitude: 14.4 feet Driller: Carloss Well Supply Company

	Thick. feet	Depth feet
Pamlico sand		
Topsoil	10	10
Graham Ferry formation		
Sand and shale	104	114
Sand, coarse; quartz and chalcedony, magnetite, limonite, kyanite, staurolite, rutile, clear zircon, tourmaline, gray opaque grains, epidote	44	158
Sand and shale	92	250
Shale, sandy	92	342
Sand and clay	22	364
Sand, "hard packed;" quartz, chalcedony, microcline, orthoclase, oligoclase-andesine, magnetite, pyrite, kyanite, epidote, clear zircon, pink garnet, staurolite, muscovite, hornblende, pink zircon, rutile; feldspars scarce	24	388
Shale, hard	23	411
Gumbo	18	429
Sand	5	434
Shale, hard	23	457
Shale	15	472
Gumbo	8	480
Shale, hard	18	498
Shale and gumbo	44	542
Sand, hard shaly	11	553
Greensand	8	561
Sand, water-bearing; quartz, chalcedony, microcline, orthoclase, sanidine, magnetite, pyrite, siderite, gray opaque grains, epidote, kyanite, zircon, tourmaline, hornblende, garnet, rutile, staurolite, muscovite, ceylonite (?)	95	656
Shale	12	668

GULFPORT FIELD 2

Harrison County 84
Altitude: 17.13 feet Driller: Carloss Well Supply Company

	Thick. feet	Depth feet
Pamlico sand		
Topsoil	20	20
Graham Ferry formation		
Gumbo	15	35
Sand, water-bearing	30	65
Clay, blue	10	75
Gumbo	25	100
Sand, water-bearing	20	120
Gumbo	6	126
Sand, water-bearing	14	140
Shale, sandy	8	148
Sand	7	155
Gumbo	10	165
Shale, sandy	5	170
Gumbo	15	185
Sand	10	195
Shale, sandy	68	263
Sand	20	283
Gumbo	27	310
Shale, hard	18	328
Shale, sandy	5	333
Shale, hard sandy	20	353
Shale, sticky	12	365
Shale, hard sandy	15	380
Shale, hard	20	400
Shale, sticky	23	423
Shale, hard	32	455
Sand	5	460
Shale, hard	25	485
Sand	15	500
Shale, sandy	29	529
Gumbo	21	550
Sand, fine	10	560
Sand, water-bearing	90	650
Shale, sandy	10	660

Gulfport Field 1

Harrison County 85
Altitude: 22.14 feet — Driller: Carloss Well Supply Company

	Thick. feet	Depth feet
Pamlico sand		
Loam, sandy	10	10
Graham Ferry formation		
Gumbo	80	90
Sand	63	153
Shale, blue	25	178
Marl, sandy	88	266
Gumbo	10	276
Shale, sandy	279	555
Sand	104	659
Shale, sandy	19	678
Sand, water-bearing	28	706
Gumbo	84	790

Harrison and Dedeaux

Harrison County 86
Altitude: 71± feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Sand and mud	69	69
Clay, blue	405	474
Sand	55	529

Robert S. Newman

Harrison County 88
Altitude: 34 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Clay, blue	300	300
Clay and sand, mixed	176	476
Sand and gravel	72	548

Gulf Coast Military Academy

Harrison County 101
Altitude: 21.84 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Pamlico, Citronelle (?), and Graham Ferry formations		
Sand and mud	75	75
Clay	423	498
Sand	50	548
Clay	277	825
Sand and gravel	75	900

CITY OF BILOXI AT FIRST AVENUE AND FATHER RYAN STREET

Harrison County 115
Altitude: 31.76 feet Driller: C. M. Journey Company

	Thick. feet	Depth feet
Recent, Pamlico, and Graham Ferry deposits		
Sand; quartz, abundant orthoclase (including sanidine) and microcline, and only a few grains of oligoclase-andesine; magnetite, kyanite, staurolite, limonite, leucoxene, zircon, tourmaline, rutile, green hornblende, epidote, pyrite, muscovite, sphene, a few grains of siderite, and pink garnet	159	159
Shale, sandy	151	310
Shale	24	334
Sand; quartz, abundant orthoclase (including sanidine) and microcline, and only a few grains of oligoclase-andesine; magnetite, pyrite, kyanite, zircon, epidote, staurolite, hornblende, rutile, sphene, pink garnet, leucoxene, tourmaline, muscovite, biotite, and green mica	10	344
Gumbo	60	404
Sand; quartz, abundant orthoclase (including sanidine) and microcline; several grains of oligoclase-andesine; heavy minerals same as in above sand	41	445
Gumbo	23	468
Shale and gumbo	22	490
Gumbo	67	557
Sand; quartz, abundant orthoclase (including sanidine) and microcline, several grains of oligoclase-andesine, somewhat more abundant than in above sands; magnetite, siderite, pyrite, epidote, kyanite, zircon, staurolite, sphene, hornblende, pink garnet, rutile, leucoxene, tourmaline, muscovite, biotite, and green mica	134	691
Sand and gumbo	18	709
Gumbo	23	732
Sand; quartz, abundant orthoclase (including sanidine) and microcline, numerous grains of oligoclase-andesine, a few grains of albite, magnetite, pyrite, siderite, kyanite, zircon, epidote, serrated hornblende, sphene, leucoxene, tourmaline, pink garnet, staurolite, rutile, muscovite, green mica, biotite	86	818
Pascagoula formation		
Gumbo	101	919
Sand; 0.6 foot rock at 943.5 feet; quartz, orthoclase and microcline; only a few grains of oligoclase-andesine; magnetite, siderite, pyrite, serrated hornblende, zircon, kyanite, staurolite, pink garnet, tourmaline, leucoxene, muscovite, and sphene	66	985
Gumbo	32	1017
Shale, sandy	85	1102

	Thick.	Depth
Sand; quartz, orthoclase and microcline; only a few grains of oligoclase-andesine; siderite, pyrite, magnetite, small amount of serrated hornblende in upper part, epidote, kyanite, zircon, pink garnet, leucoxene, staurolite, tourmaline, sphene, muscovite, biotite, green mica, rutile; serrated hornblende increases in quantity toward the base, one half of the heavy minerals in the samples from 1160 to 1180 feet being serrated hornblende	124	1226
Gumbo	1	1227

City of Biloxi

Harrison County 119
Altitude: 22.75 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, coarse	38	38
Graham Ferry formation		
Gumbo	47	85
Shale, sandy	30	115
Sand	46	161
Shale, sandy	106	267
Gumbo, tough	58	325
Sand, fine	25	350
Gumbo, tough	78	428
Sand	42	470
Gumbo, tough	80	550
Sand, water-bearing	120	670
Gumbo, tough	67	737
Sand, water-bearing	88	825
Pascagoula formation		
Gumbo, tough	25	850
Shale, sandy	50	900
Sand, water-bearing	101	1001
Gumbo, tough	55	1056
Shale, sandy	58	1114
Sand, water-bearing	68	1182
Gumbo, tough	60	1242
Shale, sandy packed	38	1280

City of Biloxi

Harrison County 121
Altitude: 20.57 feet — Driller: G. A. Hesse

	Thick. feet	Depth feet
Recent deposits		
Muck	3	3
Pamlico sand		
Sand, brown	9	12
Sand, coarse gray	33	45

Graham Ferry formation		
Gumbo	17	62
Sand, fine gray	22	84
Gumbo, blue	6	90
Sand, fine yellow	20	110
Gumbo, blue	16	126
Sand, gray	14	140
Shale	45	185
Gumbo, blue	8	193
Shale, sandy	33	226
Gumbo, blue	14	240
Shale	30	270
Gumbo, cream colored	20	290
Sand, water-bearing	14	304
Gumbo, blue	31	335
Shale, sandy	17	352
Gumbo, blue	6	358
Sand, gray packed	12	370
Gumbo, blue	23	393
Sand, packed	8	401
Gumbo, blue	59	460
Sand, shale, and gumbo, alternating strata	40	500
Gumbo, blue	7	507
Quicksand	8	515
Rock, sandy	1	516
Shale, sandy	20	536
Gumbo, soft	24	560
Sand, water-bearing	10	570
Gravel	8	578
Gumbo, tough blue	26	604
Sand, water-bearing	38	642
Gumbo, blue	14	656
Sand, water-bearing, and thin strata of sand rock	79	735
Gumbo, blue	7	742
Rock, sand, in thin strata	33	775
Pascagoula formation		
Gumbo	28	803
Gypsum	15	818
Lime rock	3	821
Gumbo, chocolate colored	18	839
Sand, water-bearing	77	916
Gumbo, blue	5	921
Sand and thin strata of lime rock	53	974
Shale, sandy	18	992
Gumbo, blue	5	997
Sand, gray	40	1037
Shale, sandy	7	1044
Sand rock containing nodules of flint	7	1051
Gumbo, tough blue	37	1088

Shale	8	1096
Shale, sandy blue	5	1101
Sand, water-bearing	98	1199
Gravel	18	1217
Gumbo, tough blue	2	1219

DeJean Packing Company

Harrison County 135
Altitude: Driller: Fred Sutter

	Thick. feet	Depth feet
Recent, Pamlico, and Graham Ferry deposits		
Sand and mud	148	148
Graham Ferry formation		
Clay, blue	546	694
Sand	35	729
Pascagoula (?) formation		
Clay	155	884
Sand	36	920
Clay	10	930
Sand and gravel	74	1004

R. K. Mulnix on Deer Island

Harrison County 136*
Altitude: Driller: C. B. Costanera

	Thick. feet	Depth feet
Not reported	350	350
Graham Ferry formation		
Sand	36	386
Clay (?)	50	436
Sand	52	488
Clay (?)	185	673
Sand	27	700
Pascagoula (?) formation		
Clay (?)	14.5	714.5
Sand	19.5	734
Shale, hard	20	754
Sandstone	0.5	754.5
Mud, soft, and sand	11.8	766.3
Sand, water-bearing; strainer placed opposite the lower 40 feet of sand	80	846.3

*U. S. Geol. Survey Water-Supply Paper 576, p. 231, 1928

Anchor Tourist Court

Harrison County 141
Altitude: 20± feet — Driller: Sutter Well Works

	Thick. feet	Depth feet
Recent, Pamlico, and Citronelle (?) deposits		
Sand and mud	80	80
Graham Ferry formation		
Clay	480	560
Sand	65	625
Clay	126	751
Sand and gravel	82	833

U. S. Veterans Hospital

Harrison County 144
Altitude: 20.6 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent, Pamlico, and Citronelle deposits		
Sand and mud	78	78
Graham Ferry formation		
Clay, blue	220	298
Sand	40	338
Clay, blue	138	476
Sand	45	521
Clay, blue	279	800
Sand and gravel	98	898

City of Gulfport

Harrison County 147
Altitude: 27.54 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent, Pamlico, and Citronelle (?) deposits		
Sand	52	52
Graham Ferry formation		
Clay	18	70
Shale	76	146
Sand	28	174
Shale and clay	27	201
Clay	42	243
Sand	18	261
Shale, sandy	54	315
Gumbo	283	598
Sand	19	617
Gumbo	93	710
Sand, salt and pepper appearance	38	748
Shale, sandy	22	770
Gumbo	26	796

Sand	16	812
Gumbo	54	866
Sand, blue	92	958

CITY OF GULFPORT

Harrison County 150*
Altitude: 12.53 feet Driller: Brown Deep Well Company

	Thick. feet	Depth feet
Recent, Pamlico, and Citronelle (?) deposits		
Sand, yellow	59	59
Graham Ferry formation		
Clay, blue	6	65
Sand, white	50	115
Clay, white	27	142
Sand, gray	68	210
Clay, blue	45	255
Sand, gray	100	355
Clay	125	480
Sand, white	12	492
Clay, white	104	596
Sand, gray	21	617
Clay, white	83	700
Sand, fine	25	725
Clay, blue	3	728
Sand, gray	7	735
Clay, gray	5	740
Sand, gray	25	765
Clay	7	772
Sand	28	800
Clay, hard	10	810
Sand	35	845
Clay, hard, and sand	10	855
Clay, hard blue	15	870
Sand, fine blue; water-bearing (?)	74	944
Pascagoula (?) formation		
Clay, blue	3	947
Not reported but includes principal water-bearing bed	226	1173

*U. S. Geol. Survey Water-Supply Paper 576, p. 192, 1928

CITY OF GULFPORT

Harrison County 151
Altitude: 25.41 feet Driller: G. A. Hesse

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Beach sand, fresh-water-bearing	30	30
Citronelle (?) formation		
Sand and coarse gravel	18	48

Graham Ferry formation		
Sand, lead colored	12	60
Clay, yellow	15	75
Sand, gray packed	21	96
Gumbo, blue	9	105
Sandstone, soft	15	120
Clay and thin strata of sand	25	145
Sand, gray packed	35	180
Sand, packed, and clay	15	195
Sand, coarse-grained red water-bearing	35	230
Gumbo, blue	32	262
Shale, sandy	18	280
Sand and shale, alternating strata	15	295
Gumbo, blue	25	320
Shale, gray	25	345
Sand, very hard; contains a little iron	15	360
Gumbo, blue	20	380
Shale, blue	22	402
Gumbo, blue	13	415
Sand and gumbo, alternating strata	28	443
Gumbo, blue	6	449
Gumbo and gray sand	10	459
Gravel, contains abundant flint	24	483
Gumbo, blue	20	503
Gumbo and thin strata of sand	10	513
Shale, sandy	19	532
Gumbo, blue	20	552
Gumbo, sandy	20	572
Rock, hard sandy	1	573
Shale, sandy	6	579
Gumbo and sand in alternate layers about 1 foot thick	16	595
Gypsum	35	630
Gumbo, chocolate-colored	10	640
Shale, brown	3	643
Gumbo, blue, and gray sand, in alternate strata	13	656
Gumbo, blue	29	685
Sand, gray	10	695
Gumbo, tough blue	8	703
Sand, water-bearing	99	802
Pascagoula (?) formation		
Gumbo, blue	18	820
Shale, gray sandy	35	855
Gumbo, lead-colored	4	859
Shale, sandy	2	861
Sand, gray, contains shell fossils	96	957
Shale, light-gray	8	965
Sand, gray water-bearing	56	1021
Gumbo, blue	4	1025
Shale, sandy	55	1080

Gumbo, blue	25	1105
Shale, sandy	20	1125
Gumbo, blue	15	1140
Sand, very hard	5	1145
Shale, sandy	20	1165
Sand, water-bearing	79	1244
Rock, very hard	-----	-----

U. S. NAVAL DEPOT 1

Harrison County 160
Altitude: 23.0 feet Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Topsoil	3	3
Pamlico sand		
Sand and gravel	13	16
Graham Ferry formation		
Clay	56	72
Sand, mucky	20	92
Clay	69	161
Clay, sandy	64	225
Sand, fine	11	236
Clay, sandy	23	259
Sand, fine	25	284
Clay, sandy	52	336
Clay, tough	186	522
Clay, sandy	85	607
Gumbo	46	653
Clay, sandy	13	666
Sand and thin strata of clay	19	685
Sand, mucky	25	710
Sand and thin strata of clay	26	736
Sand	18	754
Clay	16	770
Sand	6	776
Clay	4	780
Shale, sandy	90	870
Sand, fine	21	891
Sand	25	916
Pascagoula (?) formation		
Clay and shale	198	1114
Sand, fine	6	1120
Sand	16	1136
Sand and thin strata of shale	21	1157
Shale, gummy, and sand	16	1173
Sand	21	1194
Clay, tough	36	1230

U. S. Naval Depot 2

Harrison County 161
Altitude: 31.71 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent deposits		
Topsoil	5	5
Pamlico sand		
Sand; contains magnetite, kyanite, staurolite, zircon, tourmaline, rutile, epidote, leucoxene, pyrite, limonite, muscovite, and hornblende	20	25
Graham Ferry formation		
Clay, sandy	28	53
Sand	7	60
Clay	41	101
Sand, fine-grained muddy	13	114
Clay, tough	33	147
Muck, sandy	8	155
Clay, tough	15	170
Shale, sandy	33	203
Clay, tough	16	219
Clay, sandy	31	250
Clay, tough	12	262
Clay, sandy	24	286
Clay	24	310
Sand, fine-grained blue ; quartz, abundant, sericitized feldspar, plagioclase feldspar (albite-andesine), minor quantity of orthoclase; 15% of heavy minerals examined in this sample is serrated hornblende, magnetite, kyanite, siderite, zircon, epidote, leucoxene, pink garnet, staurolite, pyrite, rutile, muscovite, tourmaline	18	328
Clay, tough	94	422
Sand, quartz, abundant altered grains of sericite and chalcedony, less abundant microcline and orthoclase, minor sodic plagioclase; pyrite, magnetite, kyanite, epidote, zircon, staurolite, hornblende, tourmaline, rutile, pink garnet, ilmenite, and leucoxene	15	437
Gumbo	51	488
Sand, quartz, abundant microcline and orthoclase; minor sodic plagioclase; magnetite, epidote, kyanite, zircon, pyrite, pink garnet, staurolite, serrated hornblende, leucoxene, tourmaline, muscovite, and ilmenite	21	509
Clay, tough	23	532
Shale, sandy	14	546
Clay, tough	46	592
Shale, sandy	36	628
Clay, tough	7	635
Shale, sandy	20	655
Clay	23	678

	Thick. feet	Depth feet
Clay, sandy	9	687
Sand, fine-grained loose; quartz, microcline and orthoclase; more plagioclase which is oligoclase-andesine; magnetite, epidote, kyanite, zircon, pink garnet, pale and normal-colored hornblende, leucoxene, staurolite, tourmaline, rutile; pyrite in lower 25 feet	38	725
Sand and shale	48	773
Sand, fine; magnetite, epidote, kyanite, zircon, pink garnet, staurolite, serrated hornblende, leucoxene, pyrite, tourmaline, and rutile	12	785
Shale, sandy	15	800
Shale, gummy	12	812
Sand, fine water-bearing; quartz, microcline abundant, minor orthoclase, sanidine, and oligoclase-andesine; magnetite, zircon, epidote, kyanite, leucoxene, serrated hornblende, pyrite, tourmaline, staurolite, and pink garnet	38	850
Shale, gummy	60	910
Shale, sandy	34	944
Pascagoula (?) formation		
Shale, gummy	218	1162
Sand, quartz, abundant microcline, minor orthoclase, little or no plagioclase; siderite, magnetite, pyrite, zircon, epidote, hornblende, kyanite, staurolite, leucoxene, tourmaline, muscovite, biotite, green mica, rutile, pink garnet	16	1222
Shale, gummy	66	1288

U. S. Naval Depot 3

Harrison County 162
Altitude: 27.5 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand	45	45
Graham Ferry formation		
Clay and thin strata of sand	45	90
Clay, sandy	152	242
Sand, fine	68	310
Sand	18	328
Clay, tough	128	456
Clay, sandy	36	492
Clay	108	600
Sand, fine	38	638
Clay	16	654
Shale, sandy	18	672
Sand	88	760
Shale, sandy	47	807
Sand	33	840
Shale, sandy	15	855
Clay, sandy	33	888

Sand	45	933
Gumbo	49	982
Sand, fine-grained strata	38	1020
Pascagoula (?) formation		
Gumbo	69	1089
Shale, hard	111	1200
Sand	8	1208
Clay, tough	17	1225
Shale, hard	34	1259
Sand	20	1279
Clay, tough	25	1304

M. H. GOLDSTEIN

Harrison County 163
Altitude: Driller: John A. Sutter

	Thick. feet	Depth feet
Pamlico and Citronelle (?) deposits		
Sand, yellow	50	50
Graham Ferry formation		
Clay, blue	455	505
Sand, coarse	64	569

PINE HILLS HOTEL

Harrison County 166
Altitude: 14 feet Driller: John A. Sutter

	Thick. feet	Depth feet
Recent deposits		
Shells and mud	15	15
Citronelle formation		
Sand and gravel	100	115
Graham Ferry formation		
Clay, blue	453	568
Sand and gravel	116	684

J. J. JACKSON AT DE LISLE

Harrison County 166a
Altitude: 10 feet Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand and mud	75	75
Graham Ferry formation		
Clay	215	290
Sand	50	340
Clay, blue	160	500
Sand and gravel	60	560

David Nilot

Harrison County 166b
Altitude: 28± feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Pamlico and Citronelle (?) formations		
Sand and gravel	75	75
Graham Ferry formation		
Clay	395	470
Sand and gravel	70	540

Pine Hills Club House

Harrison County 166c
Altitude: 46 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Pamlico and Citronelle (?) formations		
Clay and sand, mixed	118	118
Graham Ferry formation		
Clay	450	568
Sand and gravel	118	686

O. W. Townsend at Cuevas

Harrison County 167
Altitude: 29 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Clay, blue	296	296
Sand	32	328
Clay, blue	143	471
Sand	49	520

City of Gulfport

Harrison County 169
Altitude: 11.25 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Recent, Pamlico, and Citronelle (?) deposits		
Sand, gray, and silt	69	69
Graham Ferry formation		
Clay, blue	77	146
Sand, gray	14	160
Clay, blue	227	387
Sand, gray	13	400
Clay, blue	111	511
Clay, very hard blue	60	571
Clay, blue soft	48	619
Sand, water-bearing	65	684
Clay, blue	8	692
Greensand	20	712
Clay, blue	101	813
Sand, water-bearing	77	890

Mississippi Power Company at Gulfport

Harrison County 170a
Altitude: 16 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, yellow	10	10
Sand, brown, and mud	15	25
Citronelle formation		
Clay, soft blue	35	60
Sand and gravel	15	75
Graham Ferry formation		
Clay, blue	145	220
Greensand, fine water-bearing	15	235
Clay, hard blue	115	350
Sand, water-bearing	25	375
Clay, soft blue, mixed with fine sand	80	455
Greensand, water-bearing	25	480
Clay, hard blue	140	620
Sand, water-bearing, mixed with soft mud	50	670
Clay, hard blue	80	750
Sand, water-bearing, and thin strata of soft clay	82	832
Sand, clear water-bearing, and some gravel	66	898
Pascagoula formation		
Clay, hard	-----	-----

Gulf Park College

Harrison County 173
Altitude: 16.93 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand and mud	75	75
Graham Ferry formation		
Clay, blue	380	455
Sand	49	504
Clay, blue	246	750
Sand and gravel	80	830

Dr. Butcher and Survally at Gulfport

Harrison County 173a
Altitude: 20± feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent deposits		
Sand, white	5	5
Pamlico sand		
Sand, brown	20	25
Mud and sand	5	30
Sand, gray	35	65
Graham Ferry formation		
Greensand, hard	355	420
Sand, water-bearing	38	458
Clay, hard green	248	706
Sand, water-bearing	114	820

Town of Long Beach

Harrison County 175
Altitude: 21 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand and mud	110	110
Graham Ferry formation		
Clay, blue	380	490
Sand	50	540
Clay, blue	262	802
Sand and gravel	81	883

MRS. KIGHT

Harrison County 177a
Altitude: Driller: Fred Sutter

	Thick. feet	Depth feet
Pamlico sand		
Sand	60	60
Graham Ferry formation		
Clay, blue	231	291
Sand	21	312
Clay, blue	156	468
Sand	51	519

PINEVILLE CONSOLIDATED SCHOOL

Harrison County 179
Altitude: Driller: John A. Sutter

	Thick. feet	Depth feet
Pamlico sand		
Sand, yellow	40	40
Graham Ferry formation		
Clay, blue	490	530
Sand and gravel	61	591

K. J. COLOMB

Harrison County 180
Altitude: 26 feet Driller: Fred Sutter

	Thick. feet	Depth feet
Pamlico sand		
Surface sand	8	8
Sand, yellow	52	60
Graham Ferry formation		
Clay, blue	531	591
Sand, gray water-bearing	59	650

BROOME, BRIGHT, AND SUTTER

Harrison County 182
Altitude: 7.30 feet Driller: Fred Sutter

	Thick. feet	Depth feet
Recent deposits		
Clay, soft	15	15
Pamlico sand		
Sand, yellow	50	65
Graham Ferry formation		
Clay, soft blue	345	410
Sand	60	470
Clay, blue	340	810
Sand and gravel	51	861

A. H. Vorbusch

Harrison County 183a
Altitude: Driller: John A. Sutter

	Thick. feet	Depth feet
Recent, Pamlico, and Graham Ferry deposits		
Sand and clay	135	135
Graham Ferry formation		
Clay, blue	415	550
Sand	50	600
Clay, blue	145	745
Sand and gravel	95	840

Pass Christian Tourist Court

Harrison County 184
Altitude: Driller: Fred Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand and mud	75	75
Graham Ferry formation		
Clay, blue	365	440
Sand	61	501
Clay	109	610
Sand	30	640
Clay, blue	120	760
Sand and gravel	78	838

M. J. Espey at Pass Christian

Harrison County 185a
Altitude: 25 feet Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, medium gray	30	30
Clay, hard green calcareous	15	45
Sand, fine and medium gray-brown, glauconite	40	85
Graham Ferry formation		
Clay, hard green	380	465
Sand, fine and medium water-bearing slightly glauconitic	41	506
Clay, green slightly calcareous	56	562
Sand, very fine water-bearing possibly glauconitic	50	612
Clay, hard green noncalcareous	38	650
Sand, water-bearing	103	753

A. Mullinburger

Harrison County 185b
Altitude: 20± feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Not reported	20	20
Sand, gray	10	30
Clay, green	40	70
Sand, white	25	95
Graham Ferry formation		
Clay, green	105	200
Sand, gray	18	218
Clay, gray	102	320
Sand, gray	60	380
Clay, light-green	40	420
Sand, gray water-bearing	90	510
Clay, green	115	625
Sand, yellow water-bearing	25	650
Not reported	97	747

Gray Castle Hotel

Harrison County 186
Altitude: 27.10 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand and gravel	84	84
Graham Ferry formation		
Clay, blue	406	490
Sand	65	555
Clay, blue	96	651
Sand and gravel	57	708

City of Pass Christian

Harrison County 187
Altitude: 20± feet — Driller: Sutter Well Works

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand and mud	75	75
Graham Ferry formation		
Clay	355	430
Sand	50	480
Clay	210	690
Sand	70	760
Clay	30	790
Sand and gravel	53	843

Pass Christian Artesian Water Company

Harrison County 191a
Altitude: 20 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, brown fine	30	30
Sand, white fine	60	90
Graham Ferry formation		
Clay, green-gray	270	360
Sand, very fine gray	28	388
Clay, very hard green-gray	442	830
Sand, water-bearing	71	901

Johness Realty and Securities Company

Harrison County 194
Altitude: — Driller: Sutter Well Works

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, yellow	10	10
Sand, brown	6	16
Sand, white	9	25
Citronelle (?) formation		
Clay, soft blue, or mud	15	40
Sand, white, and gravel	25	65
Graham Ferry formation		
Clay, blue	60	125
Clay, hard	25	150
Clay, soft blue	110	260
Greensand, water-bearing	20	280
Clay, tough blue	240	520
Sand, tough water-bearing	35	555
Clay, tough blue	200	755
Sand, green-gray water-bearing	45	800

Inn By The Sea

Harrison County 195
Altitude: 4.48 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, white	15	15
Pamlico (?) formation		
Clay, soft gray	25	40
Sand, white, and gravel	35	75
Citronelle (?) formation		
Sand, gray, and mud	75	150

Sand, white, and gravel	30	180
Graham Ferry formation		
Clay, soft blue	30	210
Clay, hard blue	190	400
Greensand, water-bearing	75	475
Clay, hard blue	85	560
Sand, water-bearing	20	580
Clay, hard blue, and a little shale	70	650
Sand, water-bearing	60	710
Clay, hard blue-gray, and a few strata of sandstone	190	900
Sand, gray, and gravel, water-bearing	87	987

U. S. ARMY WELL ON CAT ISLAND

Harrison County 199
Altitude: 10± feet Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand; magnetite, kyanite, clear zircon, staurolite, rutile, tourmaline, colored zircon, trace of a blue-green mineral; the central interval contains a trace of epidote and the lower part contains traces of hornblende and garnet. Feldspars, mostly orthoclase, are uncommon; (numerous weathered grains, chalcedony and leucite); a few grains are microcline and sodic plagioclase. *Bolivina* sp., *Cibicides concentricus, Elphidium gunteri* var. *galvestonense, Nonion depressula* var. *matagordana, Quinqueloculina* sp., *Rotalia beccarii* var. *tepida*	86	86
Citronelle (?) formation		
Sand and thin strata of clay; accessory minerals, magnetite, kyanite, zircon, staurolite, rutile, tourmaline; the depth interval from 93 to 117 feet contains traces of hornblende and epidote; feldspars not determined. *Bolivina* sp., *Buliminella curta, Buliminella elegantissima, Cibicides americanus, Cibicides concentricus, Elphidium gunteri* var. *galvestonense, Nonion depressula* var. *matagordana, Quinqueloculina* cf. *lamarckiana, Quinqueloculina* sp., *Rotalia beccarii* var. *tepida, Textularia mayori, Virgulina* sp.	42	128
Sand; accessory minerals, magnetite, kyanite, zircon, staurolite, rutile, tourmaline; pyrite and opaque light-gray grains at 117 to 136 feet; from 136 to 160 feet were traces of hornblende, a lavender mineral, ceylonite (?), and pyrite; 160 to 182 feet contain a little garnet. The lower 44 feet contain light-colored minerals and very little epidote, staurolite, rutile and tourmaline; no feldspars. *Bolivinia* sp., *Buliminella curta, Buliminella elegantissima, Cibicides americanus, Cibicides concentricus, Cibicides* cf. *pseudoungerianus, Elphidium gunteri* var. *galvestonense, Nonion depressula* var. *matagordana, Quinqueloculina* sp., *Virgulina punctata*	88	216

Graham Ferry formation		
Clay, blue; accessory minerals, pyrite, magnetite, kyanite, opaque light colored minerals, clear zircon; a few grains of epidote, staurolite, rutile, tourmaline, traces of hornblende, muscovite, and biotite, in upper part; lower part contains muscovite; feldspars not determined. *Bolivina* sp., *Buliminella curta, Buliminella elegantissima, Cibicides americanus, Cibicides concentricus, Nonionella* sp., *Quinqueloculina costata, Quinqueloculina lamarckiana, Quinqueloculina* sp., *Triloculina oblonga, Virgulina punctata*	30	246
Sand; accessory minerals, pyrite, magnetite, kyanite, opaque light colored minerals, clear zircon, a few grains of epidote, staurolite, rutile, tourmaline; 244 to 266 feet contain traces of garnet and hornblende; lower part contains muscovite; microcline, orthoclase, sanidine. *Bolivina* sp., *Buliminella curta, Buliminella elegantissima, Cibicides americanus, Cibicides concentricus, Elphidium incertum* var. *mexicana* (?), *Nonionella* sp., *Quinqueloculina lamarckiana, Quinqueloculina* sp., *Triloculina oblonga, Virgulina punctata*	27	273
Gumbo; same accessory minerals as in overlying sand with muscovite in the upper 14 feet; 288 to 308 feet contains siderite, more abundant in the lower part; feldspars not determined. *Bolivina* sp., *Buliminella curta, Buliminella elegantissima, Cibicides americanus, Cibicides concentricus, Elphidium incertum* var. *mexicana* (?), *Nonionella* sp., *Quinqueloculina lamarckiana, Quinqueloculina* sp., *Rotalia beccarii, Triloculina oblonga, Virgulina punctata*	54	327
Sand; same accessory minerals as in the above sand; more siderite in the upper 6 feet. The middle interval contains less siderite, more garnet, and abundant hornblende. Sanidine, microcline, minor orthoclase, rare oligoclase-andesine. Foraminifera are the same as in the depth interval 273 to 327 feet	36	363
Shale; same accessory minerals as in the above sand; more biotite or chloritoid at 417 to 437 feet; feldspars not determined. Foraminifera are the same as in the depth interval 273 to 327 feet, except that *Guttulina pulchella* and *Guttulina* sp. are present	119	482
Shale, sandy; pyrite, magnetite, kyanite, opaque light colored grains; a few grains of epidote, staurolite, rutile, tourmaline; feldspars not determined. *Bolivina* sp., *Buliminella curta, Buliminella elegantissima, Cibicides concentricus, Nonionella* sp., *Quinqueloculina lamarckiana, Quinqueloculina* sp., *Rotalia beccarii, Triloculina oblonga, Virgulina punctata*	26	508
Gumbo; same accessory minerals as in the overlying sandy shale, but contains abundant muscovite and chloritoid; feldspars not determined. Foraminifera are the same as in the depth interval 482 to 508 feet	15	523

Shale, sandy; same accessory minerals as in the above sandy shale; feldspars not determined. Foraminifera are the same as in the above sandy shale, except that *Buliminella* cf. *curta, Elphidium* sp., and *Eponides* sp. are present	124	647
Gumbo; same accessory minerals as in the above sandy shale; feldspars not determined. *Buliminella* cf. *curta, Buliminella curta, Buliminella elegantissima, Cibicides concentricus, Elphidium* cf. *Poeyanum, Elphidium* sp., *Eponides* sp., *Globigerina bulloides, Nonionella* sp., *Quinqueloculina lamarckiana, Quinqueloculina* sp., *Rotalia beccarii, Virgulina punctata*	130	777
Sand; accessory minerals, pyrite, magnetite, kyanite, opaque light colored minerals, clear zircon, only a few grains of epidote, staurolite, rutile, and tourmaline; feldspars not determined. *Elphidium* sp.	4	781
Shale, sandy, and thin strata of sand; same minerals as in the overlying sand; feldspars not determined. *Elphidium* sp.	133	914
Sand, water-bearing; interval from 927 to 948 feet contains accessory minerals, magnetite, pyrite, hornblende, light colored opaque minerals, epidote, pink garnet, kyanite, staurolite, zircon, tourmaline, rutile, ceylonite (?). Microcline, orthoclase and sanidine are present in approximately equal amounts; oligoclase-andesine more abundant than in any of the upper sands. No foraminifera were found in this sand sample	57	971

U. S. ARMY OLD ARTESIAN WELL ON CAT ISLAND, FORMERLY BIDWELL ADAMS

Harrison County 200
Altitude: Driller: Sutter Well Works

	Thick. feet	Depth feet
Recent deposits		
Sand, white	6	6
Marsh mud or blue clay	19	25
Pamlico sand		
Sand, fine gray	65	90
Citronelle (?) formation		
Clay, soft blue	55	145
Sand, coarse, and fine gravel	70	215
Clay, soft blue	45	260
Sand, coarse, and gravel	30	290
Graham Ferry formation		
Clay, mixed blue, and fine gray sand	180	470
Greensand and gravel, water-bearing	60	530

U. S. Coast Guard

Harrison County 202*
Altitude: 10 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, white	45	45
Citronelle (?) formation		
Clay, soft, and mud	155	200
Graham Ferry formation		
Clay, hard blue	100	300
Sand, white	5	305
Clay, blue	260	565
Sandstone	0.5	565.5
Clay, blue	156	721.5
Sand, water-bearing	8.5	730

*Louisiana Geol. Survey pt. 6 (Rept. for 1902), p. 220, 1902

U. S. Coast Guard

Harrison County 204*
Altitude: 6 feet — Driller: John A. Sutter (?)

	Thick. feet	Depth feet
Recent, Pamlico, and Citronelle (?) deposits		
Sand	250	250
Graham Ferry formation		
Clay, yellow	100	350
Mud, blackish	50	400
Sand, fine, with shells	50	450
Clay, blue	250	700
Sand, water-bearing	50	750

*Louisiana Geol. Survey pt. 6 (Rept. for 1902), p. 220, 1902

P. G. Galloway, 2 Miles West of Harleston

Jackson County 1a*
Altitude: 116 feet — Driller:

	Thick. feet	Depth feet
High terrace deposits		
Sand, loamy	1	1
Clay, red	10	11
Sand, red water-bearing (water is red)	3	14
Sand, white; water-bearing at base	18	32

*U. S. Geol. Survey Water-Supply Paper 576, p. 232, 1928

J. K. MONTEITH, 3 MILES NORTHWEST OF HURLEY

Jackson County 1b*
Altitude: 112 feet — Driller:

	Thick. feet	Depth feet
High terrace deposits		
Loam, sandy	1	1
Clay, stiff sandy	3	4
Clay, hard stiff yellow	6	10
Clay, yellow sandy	4	14
Sand, water-bearing	6	20

*U. S. Geol. Survey Water-Supply Paper 576, p. 232, 1928

L. N. DANTZLER LUMBER COMPANY B-1

(BASED ON SAND SAMPLES AND HALLIBURTON ELECTRICAL LOG)

Jackson County 4
Altitude: 108 feet — Driller: Humble Oil and Refining Company

	Thick. feet	Depth feet
Graham Ferry formation		
Clay or shale (no samples)	.....	230
Sand, possibly contains some fine gravel (no samples)	80	310
Pascagoula formation		
Clay, gray noncalcareous	200	510
Sand and gray sandy clay, coarser near base	120	630
Clay, gray	60	690
Sand, possibly fine	20	710
Sand, fine, and gray-green clay	115	825
Clay, green-gray, some fine sand	104	929
Clay, dark-gray; *Rotalia beccarii* (Linnaeus), *Eponidella cushmani* Stephenson, *Microcythere johnsoni* Mincher, *Rangia johnsoni* (Dall)	30	959
Clay, gray and silty	93	1052
Clay, gray and silty; abundant *Rangia johnsoni* (Dall), *Rotalia beccarii* (Linnaeus)	30	1082
Clay, dark-gray and silty; a few *Rangia johnsoni* (Dall).	18	1100
Sand, medium, and fine gravel near base	50	1150
Clay, sandy, red and light-gray	82	1232
Clay, gray and silty; fragments of *Rangia johnsoni* (Dall), may be from above	48	1280
Clay, gray silty	30	1310
Clay, gray silty; fragments of *Rangia johnsoni* (Dall) (?) may be from above	60	1370
Sand, possibly some sandy clay or shale and some fine gravel near base; fragments of *Rangia johnsoni* (Dall), may be from above	230	1600
Hattiesburg formation		
Clay, gray sandy and silty, and gravel (black polished chert), coquina containing *Rangia* sp.	510	2110
Clay or shale	110	2220
Catahoula sandstone; Top of *Heterostegina* zone	.....	2490

L. N. DANTZLER LUMBER COMPANY, 1 1/2 MILES SOUTH OF VANCLEAVE

Jackson County 7
Altitude: 11 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Stream alluvium		
Clay, yellow sandy	10	10
Citronelle (?) formation		
Sand, fine yellow	20	30
Sand, coarse light-brown yellow	50	80
Graham Ferry formation		
Clay, green sandy	170	250
Sand, light-gray	45	295
Pascagoula formation		
Clay, green sandy	395	690
Sand, water-bearing	60	750

CHARLES ALEXANDER, 1 1/2 MILES NORTH OF HELENA

Jackson County 11a*
Altitude: 28 feet — Driller:

	Thick. feet	Depth feet
Low terrace deposits		
Sand, black	1	1
Sand, yellow, mixed with clay	5	6
Graham Ferry (?) formation		
Clay, stiff hard	2.5	8.5
Sand, fine white water-bearing	11.5	20

*U. S. Geol. Survey Water-Supply Paper 576, p. 233, 1928

FRANK E. HURD AT NUTBANK

Jackson County 11b*
Altitude: 30 feet — Driller:

	Thick. feet	Depth feet
Low terrace deposits		
Soil, black sandy	2	2
Subsoil, yellow sandy	4	6
Graham Ferry formation		
Clay, yellow sandy	7	13
Clay, red	4	17
Quicksand, water-bearing	3	20

*U. S. Geol. Survey Water-Supply Paper 576, p. 232, 1928

EDWARD LAMEY

Jackson County 14
Altitude: 43.38 feet — Driller: Thomas Evans

	Thick. feet	Depth feet
Graham Ferry formation		
Silt, green, and clay	130	130
Silt, green. *Elphidium* sp., *Rotalia beccarii* var. *parkinsoniana*	50	180
Silt, green. *Rotalia beccarii* var. *parkinsoniana, Elphidium* sp., and *Textularia gramen*	60	240
Clay, green. *Rotalia beccarii* var. *parkinsoniana*	140	380
Silt, green. *Rotalia beccarii* var. *parkinsoniana*	40	420
Clay, green-blue, and silt. *Rotalia beccarii* var. *parkinsoniana, Elphidium* sp.	140	560
Greensand, very fine; a little silt and black particles (glauconite ?). *Rotalia beccarii* var. *parkinsoniana*	40	600
Pascagoula formation		
Silt, green; a few black particles. *Rotalia beccarii* var. *parkinsoniana*	409	1009
Silt, green, slightly coarser grain size than the above; a few black particles. *Rotalia beccarii* var. *parkinsoniana*	85	1094

LOUISVILLE AND NASHVILLE RAILROAD AT OCEAN SPRINGS

Jackson County 41
Altitude: 24.81 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Pamlico sand		
Clay, yellow	15	15
Sand, gray	15	30
Citronelle (?) formation		
Clay, soft blue	20	50
Sand, white, and gravel	20	70
Graham Ferry formation		
Clay, soft blue	40	110
Sand, fine gray, and mud	40	150
Clay, blue	150	300
Sand, water-bearing	30	330
Clay, tough blue	135	465
Sand and gravel, water-bearing	70	535
Pascagoula formation		
Clay, hard blue	105	640
Sand, water-bearing	15	655
Clay, hard blue	145	800
Sand, water-bearing	50	850
Clay, tough blue	50	900
Sand, mixed, and soft clay	300	1200
Sand, water-bearing	90	1290

HIBBLER No. 1

Jackson County 46
Altitude: 0 feet Driller: Sea Coast Oil Company, Inc.

	Thick. feet	Depth feet
Recent, Pamlico, and Citronelle (?) deposits		
Sand and clay	40	40
Sand, salt water	70	110
Graham Ferry formation		
Gumbo	70	180
Sand and clay	60	240
Clay and gumbo	30	270
Sand	21	291
Gumbo	15	306
Shale	46	352
Sand	30	382
Pascagoula formation		
Gumbo	13	395
Gumbo and shale	217	612
Gumbo	48	660
Shale	54	714
Sand and shells	21	735
Sand, rough	84	819
Sand and shells	21	840
Shale and shells	73	913
Shale, mushy and gummy	142	1055
Sand and shale	14	1069
Sand, hard	6	1075
Gumbo	35	1110
Sand	21	1131
Shale, gummy	99	1230
Sand and shells	36	1266
Shale and shells; *Rangia johnsoni* Dall (U. S. G. S. station 9093a)	21	1287
Shale, gummy, and shells; *Arca?* (fragment), *Ostrea?* (fragment), *Rangia johnsoni* Dall (U. S. G. S. station 9093b)	73	1360
Gumbo, sandy, and shells; Terebra (fragment), *Arca* near *A. buccula* Conrad, *Ostrea?* (fragment), *Rangia johnsoni* Dall (U. S. G. S. station 9093c)	64	1424
Gumbo, sandy, and shells; *Ostrea?* (fragment), Rangia johnsoni Dall (U. S. G. S. station 9093d)	43	1467
Gumbo, sandy, and shells; *Anachis sp.* (fragment), *Arca?* (fragment), *Rangia johnsoni* Dall (U. S. G. S. station 9093e)	41	1508
Sand and shells; *Arca?* (fragment), *Ostrea?* (fragment), *Rangia johnsoni* Dall (U. S. G. S. station 9093f)	8	1516
Gumbo; *Arca?* (fragment), *Ostrea?* (fragment), *Rangia johnsoni* Dall (U. S. G. S. station 9093f)	8	1524
Marl, blue, and shells; *Arca?* (fragment), *Ostrea?* (fragment), *Rangia johnsoni* Dall (U. S. G. S. station 9093f)	28	1552
Gumbo and shells	46	1598

Sand and shells	16	1614
Marl, blue, and shells	22	1636
Marl, blue	10	1646
Sand and shells	12	1658
Gumbo	10	1668
Sand and shells	8	1676
Sand, gravel, shells, and small streaks of gumbo	49	1725
Sand and shells, salt water	35	1760
Sand and shells	40	1800
Hattiesburg formation		
Gumbo, sandy, and shells	11	1811
Gumbo, sandy	23	1834
Sand, shells, and boulders	50	1884
Shale, sandy	21	1905
Gumbo	7	1912
Sand, loose	15	1927
Sand, hard	30	1957
Shale and gumbo	16	1973
Sand and shells	47	2020
Sand, shale, and shells	38	2058
Sand, hard	25	2083
Shale, sandy	28	2111
Sand and shells, 2111-2121; gumbo, 2121-2133; sand and gumbo, 2133-2148; *Oliva?* sp., *Cerithium* sp. ?, group of C, *whitfieldi* (Heilprin), *Cerithium?* sp., *Natica?* sp., *Rangia johnsoni* Dall, crab claw	37	2148
Gravel, sand, and shells	40	2188
Shale	28	2216
Sand and shells	10	2226
Lime rock	3	2229
Shale	12	2241
Shale and boulders	16	2257
Shale, hard, and shells; *Cerithium* or *Potamides, Cerithium whitfieldi* (Heilprin)	37	2294
Gumbo; *Cerithium* or *Potamides, Cerithium whitfieldi* (Heilprin)	21	2315
Sand and shells; *Cerithium* or *Potamides, Cerithium whitfieldi* (Heilprin)	8	2323
Shale, hard; *Cerithium* or *Potamides, Cerithium whitfieldi* (Heilprin)	27	2350
Shale; *Cerithium* or *Potamides, Cerithium whitfieldi* (Heilprin)	11	2361
Sand and shells	12	2373
Gumbo	32	2405
Shale	28	2433
Shale, hard	158	2591
Sand, hard	5	2596
Shale, hard	19	2615
Sand and gravel	29	2644
Sand, shells, and gravel	44	2688
Sand, coarse	31	2719

Gumbo	5	2724
Lime rock	4	2728
Shale, hard	75	2803

L. N. Dantzler Lumber Company

Jackson County 47*
Altitude: 8 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Pamlico sand		
Clay, hard yellow sandy	20	20
Sand, yellow	15	35
Citronelle formation		
Clay, mottled sandy	15	50
Sand, fine white	50	100
Sand, coarse white	40	140
Graham Ferry formation		
Clay, sandy	70	210
Sand, fine white	10	220
Clay	150	370
Sand, fine white	20	390
Pascagoula formation		
Clay	320	710
Sand, fine gray water-bearing	80	790
Clay	-----	-----

*U. S. Geol. Survey Bull. 264, p. 87, 1905

City of Moss Point

(combination log of 5 wells)

Jackson County 51-55
Altitude: 16 feet — Drillers: Layne Central Company
Gray Artesian Well Corporation

	Thick. feet	Depth feet
Pamlico sand		
Topsoil	10	10
Clay	15	25
Sand	50	75
Citronelle (?) formation		
Gravel, fine	25	100
Sand, coarse	55	155
Graham Ferry formation		
Gumbo	165	320
Soapstone	100	420
Pascagoula formation		
Gumbo	94	514
Soapstone	86	600
Sand	8	608

Gumbo	70	678
Sand	24	702
Gumbo	33	735
Sand	24	759
Gumbo	41	800
Sand	150	950
Gumbo	150	1100
Shale, fine sand, and oyster shells	100	1200

Southern Kraft Corporation 1

Jackson County 58
Altitude: 9.7 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Pamlico sand		
Clay	1	1
Sand, yellow	3	4
Clay	4	8
Sand	12	20
Citronelle (?) formation		
Clay, sandy	42	62
Clay	21	83
Sand, coarse	32	115
Graham Ferry formation		
Clay, blue	97	212
Sand	39	251
Clay	1	252
Sand	13	265
Pascagoula formation		
Gumbo	105	370
Shale	10	380
Gumbo	86	466
Shale	259	725
Sand, fine muddy	15	740
Shale, blue	66	806
Shale, sandy	114	920
Sand	50	970
Clay, sandy	27	997

Southern Kraft Corporation 2

Jackson County 59
Altitude: 7.0 feet — Driller: Layne Central Company

	Thick. feet	Depth feet
Pamlico sand		
Topsoil	1	1
Sand, yellow	3	4
Clay	5	9
Sand	16	25

Citronelle formation		
Clay, sandy	38	63
Clay	22	85
Sand, coarse	21	106
Sand and gravel	34	140
Graham Ferry formation		
Clay, blue	59	199
Sand	20	219
Sand and shale	55	274
Sand	6	280
Pascagoula formation		
Gumbo	70	350
Sand	15	365
Gumbo	99	464
Shale	126	590
Sand	36	626
Shale, sandy	73	699
Sand and shale	46	745
Shale, blue	64	809
Shale, sandy	140	949
Sand	41	990
Clay, sandy	20	1010

City of Moss Point

Jackson County 62
Altitude: 23.32 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Pamlico sand		
Silt, yellow, and clay	14	14
Greensand, very fine, and silt; a few yellow particles	22	36
Graham Ferry formation		
Clay, green, and silt; a few black particles. *Elphidium* cf. *poeyanum, Rotalia beccarii* var. *parkinsoniana*	51	87
Clay, green. *Rotalia beccarii* var. *parkinsoniana*	120	207
Silt, green; traces of mica and black particles. *Rotalia beccarii* var. *parkinsoniana*	30	237
Silt, green; traces of lignite and other black particles; mica at 350 to 370 feet. *Rotalia beccarii* var. *parkinsoniana*	133	370
Pascagoula formation		
Clay, green; a little silt. *Rotalia beccarii* var. *parkinsoniana*	231	601
Clay, green; grain sizes ranging from silt up to coarse sand. *Rotalia beccarii* var. *parkinsoniana*	189	790
Greensand, very fine, and silt; a few black particles	53	843

F. H. Lewis at Moss Point

Jackson County 66a*
Altitude: Driller:

Undifferentiated Pamlico, Citronelle (?), and Graham Ferry deposits	Thick. feet	Depth feet
Sand	100	100
Clay and mud	150	250
Pascagoula formation		
Clay, hard	150	400
Sand, water-bearing	20	420
Clay, hard	200	620
Sand, water-bearing	40	660
Sand and clay	110	770
Sand, water-bearing	44	814
Rock, hard, sand, mud, and wood	736	1550

*Mississippi Agr. Exper. Sta. Bull. 89, p. 79, 1905

Town of Ocean Springs

Jackson County 71a*
Altitude: 25 feet Driller: John A. Sutter

Undifferentiated Pamlico, Citronelle (?), and Graham Ferry deposits	Thick. feet	Depth feet
Surface soil, sand, and gravel	150	150
Graham Ferry formation		
Clay	250	400
Sand	20	420
Clay	40	460
Sand and gravel	60	520
Pascagoula formation		
Clay	400	920
Sand, water-bearing	30	950

*Mississippi Agr. Exper. Sta. Bull. 89, p. 77, 1905

Magnolia State Park 2 at Ocean Springs

Jackson County 74
Altitude: 21.0 feet Driller: V. C. Mickle, National Park Service

Pamlico sand	Thick. feet	Depth feet
Sand, yellow	10	10
Clay, yellow	10	20
Sand, white	10	30
Graham Ferry formation		
Clay, blue	23	53
Sand	55	108

Shale, blue clayey	13	121
Sand	29	150
Clay, blue	24	174
Sand	10	184
Clay, blue	3	187
Sand	6	193
Clay, blue	12	205
Sand	6	211
Clay, blue	73	284
Sand	39	323
Shale, light blue	128	451
Sand and logs	21	472
Clay	9	481
Sand, water-bearing	79	560

Magnolia State Park 1 at Ocean Springs
(from rotary samples and driller's log)

Jackson County 75
Altitude: 17.54 feet Driller: V. C. Mickle, National Park Service

	Thick. feet	Depth feet
Pamlico sand		
Sand, medium yellow, and clay	20	20
Graham Ferry formation		
Silt, gray-brown, and dark-gray clay	10	30
Sand, water-bearing poorly-sorted, and fine gravel, mostly quartz; abundant siderite, fragments of lignitized wood, and a little glauconite. *Rotalia beccarii* var. *parkinsoniana, Rotalia beccarii* var. *tepida, Elphidium* sp., *Elphidium incertum* var. *mexicana, Discorbis* sp., *Cibicides concentricus, Bolivina* sp., *Elphidium gunteri* var. *galvestonense, Globigerina bulloides, Buliminella elegantissima*	135	165
Clay, gray-green; a little pyrite or marcasite	15	180
Clay, blue and gray-green; a few grains of silt and sand; some pyrite or marcasite. *Gyroidina* sp., *Cibicides concentricus*	95	275
Sand, fine and silty	37	312
Clay, gray and blue	47	359
Sand, fine silty. *Rotalia beccarii* var. *parkinsoniana*	9	368
Clay, light-green	40	408
Sand, fine gray	23	431
Clay and silty clay, green-brown; a little pyrite. *Elphidium* sp.	42	473
Sand, water-bearing poorly-sorted coarse to fine, mostly clear angular quartz. *Rotalia beccarii* var. (?)	92	565
Pascagoula formation		
Shale, compact	5	570

E. B. TOWNSEND

Jackson County 78
Altitude: Driller: Sutter Well Works

	Thick. feet	Depth feet
Pamlico sand		
Clay, gray hard	18	18
Sand and mud, mixed	42	60
Graham Ferry and Pascagouula formations		
Mud, soft, and clay	40	100
Sand and gravel	32	132
Clay, blue	57	189
Greensand	92	281
Mud, clay, and greensand, alternating strata	374	655
Sand, water-bearing	61	716

PASCAGOULA STREET RAILWAY AND POWER COMPANY

Jackson County 85*
Altitude: 13.60 feet Driller: Frank Sutter

	Thick. feet	Depth feet
Pamlico and Citronelle formations		
Sand and gravel	350	350
Graham Ferry and Pascagoula formations		
Clay, blue	400	750
"Clam" shells	5	755
Clay, blue	25	780
Sand, water-bearing	20	800

*Mississippi Agr. Exper. Sta. Bull. 89, p. 78, 1905

City of Pascagoula

Jackson County 93
Altitude: Driller: C. M. Journey Company

	Thick. feet	Depth feet
Pamlico and Citronelle formations		
Sand	10	10
Clay	13	23
Sand	10	33
Log	1	34
Sand	12	46
Gumbo, sandy	9	55
Log	1	56
Sand	10	66
Sand, coarse	43	109
Sand	11	120
Graham Ferry formation		
Gumbo	10	130
Gumbo and thin strata of sand	87	217
Gumbo	21	238
Gumbo and thin strata of sand	44	282
Sand	107	389

Louisville and Nashville Railroad Timber Treating Plant

Jackson County 95
Altitude: 9.31 feet Driller: Mr. Bond

	Thick. feet	Depth feet
Pamlico, Citronelle, and Graham Ferry formations		
Clay, yellow	20	20
Mud, blue	20	40
Sand, fine gray	25	65
Sand, coarse, and gravel	30	95
Sand, fine gray	15	110
Sand, fine, and soft clay	162	272
Greensand, fine water-bearing	13	285
Clay, soft blue, and fine gray sand	155	440
Greensand, water-bearing	10	450
Pascagoula formation		
Clay, blue	85	535
Greensand, water-bearing	20	555
Clay, hard blue, or gumbo	117	672
Greensand and fine gravel, water-bearing	64	736

City of Pascagoula

Jackson County 104, 105, 106
Altitude: 12 feet Driller: Mercer-Runyan Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand	6	6
Clay, soft	40	46
Sand	10	56
Citronelle (?) formation		
Clay, soft	12	68
Sand	61	129
Graham Ferry formation		
Gumbo	17	146
Sand, fine muddy	68	214
Sand, water-bearing	126	340
Gumbo	10	350
Sand	35	385
Pascagoula formation		
Gumbo	18	403

City of Pascagoula

Jackson County 107
Altitude: 13 feet Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Topsoil	4	4
Clay, sandy	16	20
Clay, blue, and thin strata of sand	50	70
Citronelle (?) formation		
Sand	38	108
Sand, fine, and thin strata of clay	62	170
Graham Ferry formation		
Clay	5	175
Sand	20	195
Clay, blue	22	217
Sand, fine to medium; quartz, minor quantities of chert, microcline, orthoclase, sanidine, oligoclase-andesine, almandite garnet, hornblende, staurolite, kyanite, dark opaque grains, light-gray opaque grains, pink, clear, and salmon colored zircon, muscovite, pyrite, biotite, glauconite, ceylonite (?), tourmaline; medium grained sand at base. *Entosolenia orbignyana*	146	363
Sand, fine, and thin strata of lignite	21	384
Sand, fine, *Elphidium* sp.	6	390
Pascagoula formation		
Clay, tough. *Elphidium* sp. in the interval 390 to 408 feet	48	438
Sand, fine, and thin strata of shale	37	475
Shale, gummy	69	544
Sand, fine	12	556
Sand, fine, and thin strata of shale	21	577
Gumbo	22	599
Shale and thin strata of sand	21	620
Shale	95	715
Sand, fine to medium; mostly quartz, minor microcline, orthoclase, sanidine, oligoclase-andesine, pyrite, dark and light opaque grains, tourmaline, almandite garnet, epidote, kyanite, staurolite, hornblende (including a light-green variety with serrated edges and indices near 1.69), muscovite and rutile	90	805
Shale	5	810

W. A. POLLOCK, JR.

Jackson County 108
Altitude: 10 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Recent deposits		
Sand, yellow	13	13
Mud, black	22	35
Pamlico (?) sand		
Sand, white	12	47
Clay, soft blue	8	55
Sand, white	20	75
Citronelle (?) formation		
Clay, hard	22	97
Sand, white, and gravel	60	157
Graham Ferry formation		
Sand and mud	38	195
Clay, hard	21	216
Sand, white	20	236
Sand and mud	34	270
Pascagoula (?) formation		
Clay, hard	170	440
Sand, fine gray	3	443
Clay	107	550
Sand, gray	54	604
Clay	64	668
Sand	10	678
Clay	22	700
Sand, water-bearing	110	810

HORN ISLAND ARMY WELL 2

Jackson County 112
Altitude: Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, frosted grains, mostly quartz, but include minor microcline, magnetite and other dark opaque grains, kyanite, both white and blue, staurolite, pyrite, pink zircon, leucoxene, white zircon, epidote, and traces of hornblende and brown tourmaline. *Rotalia beccarii, Buliminella elegantissima, Bolivina pulchella* var. *primitiva, Nonionella auris*	46	46
Citronelle (?) formation		
Clay, dark-blue or black, and light-gray, gray-green in the lower part. *Rotalia beccarii, Buliminella elegantissima, Bolivina pulchella* var. *primitiva, Virgulina punctata, Bolivina rhomboidalis, Angulogerina occidentalis, Reussella spinulosa* var., *Discorbis floridana, Asterigerina carinata;* also fossil mollusca	23	69
Sand, similar to the surface material except more heavy minerals, especially kyanite and staurolite. *Rotalia beccarii, Buliminella elegantissima, Bolivina pulchella* var. *primitiva, Asterigerina carinata, Cibicides concentricus, Elphidium gunteri, Elphidium incertum*	97	166
Graham Ferry formation		
Clay, green and gray, abundant fine sandy clay; some grains of lignite and crystals of secondary pyrite. *Cibicides concentricus, Elphidium gunteri, Elphidium incertum, Rotalia beccarii* var. *parkinsoniana, Guttulina pulchella*	44	210
Shale, green and gray abundant silty, sandy, and carbonaceous shale. *Cibicides concentricus, Elphidium gunteri, Rotalia beccarii* var. *parkinsoniana, Guttulina pulchella*	130	340
Sand, fine angular quartz; minor microcline, orthoclase, black and light-gray opaque grains, clear kyanite, staurolite, pyrite, almandite garnet, epidote, clear zircon, brown tourmaline, pink and salmon-colored zircon, trace of hornblende	17	357
Shale, blue-gray. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana, Guttulina pulchella,* probably present	16	373
Rock, apparently large fossils appear in the cuttings as small fragments. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana, Guttulina pulchella,* probably present	2	375
Shale, blue-gray and brown carbonaceous; a few fragments of large fossils, apparently mollusca. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana, Guttulina pulchella*	37	412
Sandy clay or shale, blue-green. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana, Guttulina pulchella, Textularia mayori*	83	495

	Thick. feet	Depth feet
Sand, fine gray-green; numerous shale fragments, quartz, black and light-gray opaque grains, pyrite, clear kyanite, staurolite, clear zircon, almandite garnet, epidote, hornblende, salmon-colored zircon, tourmaline, blue kyanite. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana*	28	523
Shale, bluegreen noncalcareous. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana, Textularia mayori*	109	632
Sandy shale, shale, and silty shale, gray-green. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana, Textularia mayori*	110	742
Shale, gray-green noncalcareous. *Cibicides concentricus, Rotalia beccarii* var. *parkinsoniana, Textularia mayori;* a few mollusc fragments	17	759
Sand, angular to well-rounded quartz, minor plagioclase, microcline, pyrite, kyanite, staurolite, zircon, epidote, tourmaline, black and light-gray opaque grains, trace of hornblende	60	819

HORN ISLAND ARMY WELL 1

Jackson County 113
Altitude: Driller: Layne Central Company

	Thick. feet	Depth feet
Recent and Pamlico deposits		
Sand, coarse, and fine gravel; clear and milky quartz, many frosted grains, gray and black chert, microcline, weathered calcic plagioclase, magnetite, limonite, kyanite, clear zircon, staurolite, rutile, tourmaline, epidote, hornblende, ceylonite (?), pyrite, pink zircon. *Rotalia beccarii* var. *tepida, Bolivina pulchella* var. *primitiva; Buliminella elegantissima* and *Angulogerina occidentalis* may belong here but could be in the underlying clay; also mollusca fragments	55	55
Citronelle (?) formation		
Clay, dark-gray slightly carbonaceous; much fine pyrite, white mica. *Elphidium gunteri,* probably also *Buliminella elegantissima, Angulogerina occidentalis, Rotalia beccarii* var. *tepida,* and ostracoda	10	65
Sand, medium to coarse, containing thin layers of dark-gray somewhat carbonaceous clay; clear and milky quartz, chert, scarce feldspar, siderite, magnetite, spherulitic pyrite or marcasite, clear kyanite, clear zircon, staurolite, muscovite, tourmaline, hornblende, garnet, epidote, ceylonite (?), sky-blue kyanite. *Rotalia beccarii* var. *tepida.* Sample probably is contaminated from surface material	103	168
Graham Ferry formation		
Sandy clay, light-gray and green-gray, and sand; abundant pyrite, chloritoid, and a green opaque mineral (?) resembling glauconite. The clay is noncalcareous. Minerals in the sand are the same as in the overlying sand, indicating contamination. *Buliminella elegantissima* and echinoid fragments	34	202

Clay, gray and green-gray; some chloritoid. *Buliminella elegantissima,* fragments of mollusca and echinoids	36	238
Sandy clay, calcareous; abundant fine sand grains; magnetite, siderite, kyanite, zircon, epidote, staurolite, hornblende, spherulitic pyrite or marcasite, tourmaline, muscovite and biotite	26	264
Clay, blue-gray and calcareous; fragments of mollusca	50	314
Clay, blue-gray, thin strata of calcareous silt and medium to fine gray sand containing numerous opaque grains and chloritoid. The depth interval 353 to 377 feet is abundantly fossiliferous; *Rotalia beccarii* var. *tepida* has been identified. Numerous fine sand grains containing muscovite in the lower 40 feet. *Buliminella elegantissima* is found in the depth interval 399 to 422 feet. The first appearance of serrated light yellow-green hornblende at 443 feet	212	526
Sand, medium to fine, angular and subrounded clear and milky quartz, chalcedonic grains (chert), microcline, orthoclase, calcic plagioclase, rare albite, magnetite, kyanite, zircon, pyrite, siderite, epidote, staurolite, muscovite, hornblende, tourmaline, and chloritoid	11	537
Shale or clay, gray-green, mostly noncalcareous but contains fragments of *Ostrea* sp. and *Rotalia beccarii* var. *tepida*	33	570
Clay, olive-gray, mostly noncalcareous, but contains numerous fragments of mollusca and echinoid fossils. *Loxostomum mayori* (?)	131	701
Sand, fine gray, mostly angular quartz and microcline, some chloritoid and other heavy minerals, also andesine-oligoclase	8	709
Clay, sandy, and thin strata of sand. The clay is light green. *Rotalia beccarii* var. *tepida*	59	768
Sand, fine to medium, coarse at base; mostly angular to subrounded quartz grains, but a few grains are well rounded. Several grains of black chert, magnetite, kyanite, staurolite, pyrite, clear zircon, tourmaline, garnet, muscovite, hornblende, and rutile	68	836

SOUTHERN MINERALS CORPORATION 1

(COMBINATION OF DRILLER'S AND ELECTRICAL LOG)

Pearl River County 2
Altitude: 350 feet Driller: Placid Oil Company

	Thick. feet	Depth feet
Citronelle and Pascagoula formations		
Surface sand, gravel, and clay, driller's description	400	400
Pascagoula formation		
Shale, sandy	172	572
Gumbo	146	718
Sand	135	853
Hattiesburg formation		
Shale	10	863
Shale, sandy	19	882
Shale	240	1122
Shale, sandy	10	1132
Shale	15	1147
Shale, sandy	10	1157
Shale	135	1292
Sand	82	1374
Catahoula sandstone		
Shale, sticky	48	1422
Shale, sandy	8	1430
Gumbo	110	1540
Sand	40	1580
Shale	5	1585
Sand	65	1650
Shale	10	1660
Sand	20	1680
Shale	55	1735
Sand	10	1745
Shale	12	1757
Sand and gravel	20	1777
Shale	3	1780
Sand and thin strata of shale	50	1830
Shale	80	1910
Limestone, top of *Heterostegina* zone	30	1940

Pearl River Junior College at Poplarville

Pearl River County 6a
Altitude: 342 feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Citronelle and Pascagoula formations		
Sand, yellow, and clay	190	190
Pascagoula formation		
Clay, blue	348	538
Sand, fine gray	35	573
Clay, blue	2	575
Sandstone	40	615
Clay, blue	16	631
Sandstone	11	642
Sand, hard gray	16	658
Sandstone	4	662
Clay	3	665
Sandstone	4	669
Clay	11	680
Sandstone	2	682
Clay, blue	218	900

Southern Minerals Corporation 2
(combination of driller's and electrical log)

Pearl River County 9
Altitude: 250 feet — Driller: Placid Oil Company

	Thick. feet	Depth feet
Pascagoula formation		
Surface sand, gravel, and shale, driller's description	603	603
Shale and gravel	61	664
Gumbo, blue, and shale	133	797
Shale, gummy	83	880
Sand	10	890
Shale, gummy	60	950
Sand	126	1076
Shale	6	1082
Sand and gravel	26	1108
Hattiesburg formation		
Shale	72	1180
Shale, sandy, and thin strata of gravel	18	1198
Shale	48	1246
Shale, sandy	12	1258
Shale	18	1276
Sand	8	1284
Shale	6	1290
Sand	20	1310
Shale	40	1350
Sand	25	1375
Shale	10	1385

Sand and gravel	110	1495
Shale	15	1510
Sand and gravel	52	1562
Catahoula sandstone		
Shale	10	1572
Sand	13	1585
Shale	75	1660
Sand and shale	35	1695
Sand	10	1705
Shale	23	1728
Sand	4	1732
Shale	23	1755
Shale and sand	20	1775
Sand	25	1800
Shale	38	1838
Sand	14	1852
Shale	98	1950
Sand and shale	40	1990
Shale	10	2000
Sand and shale	90	2090
Sandstone and shells	32	2122
Lime, broken, and sand; top of *Heterostegina* zone	8	2130

H. L. STEWART

Pearl River County 10
Altitude: Driller: Fred Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Sand and gravel	110	110
Pascagoula formation		
Clay, blue	165	275
Sand	30	305
Clay, blue	107	412
Sand and gravel	80	492

Savannah School

Pearl River County 20a
Altitude: 315 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Citronelle formation		
Sand, clay, and some yellow gravel	100	100
Graham Ferry (?) formation		
Clay, blue	85	185
Sand, blue	20	205
Clay, blue	135	340
Sandstone	2	342
Clay, blue	98	440
Sandstone	3	443
Pascagoula (?) formation		
Clay, blue	424	867
Sand and gravel and dark chert	40	907

La Row Investment Company at Plant

Pearl River County 25
Altitude: 200 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Citronelle formation		
Sand, red, and clay	80	80
Graham Ferry formation		
Clay, blue	138	218
Sand and gravel	70	288

La Row Investment Company at Home

Pearl River County 25a
Altitude: 190 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Clay, red	132	132
Sand	9	141
Shale	54	195
Sand, green-gray	133	328
Pascagoula formation		
Shale, tough	18	346
Sandstone	33	379
Sand	152	531
Shale	10	541

McNeill High School

Pearl River County 25b
Altitude: 230 feet — Driller: Fred Sutter

	Thick. feet	Depth feet
Citronelle formation		
Clay, yellow	8	8
Sand and gravel	110	118
Graham Ferry formation		
Clay, blue	127	245
Sand and gravel	50	295
Clay, blue	65	360
Sand and gravel, water-bearing	90	450

Edward Hines Lumber Company 1 at Barth

Pearl River County 25c
Altitude: 150± feet — Driller: John A. Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Sand, yellow, and clay	15	15
Clay, blue	25	40
Sand, white, and gravel	50	90
Clay, soft blue	110	200
Greensand and gravel at bottom, water-bearing	152	352

Edward Hines Lumber Company 2 at Barth

Pearl River County 25d
Altitude: 150± feet — Driller:

	Thick. feet	Depth feet
Graham Ferry formation		
Sand, yellow, and clay	15	15
Clay, blue	25	40
Sand, white, and gravel	75	115
Clay, soft gray	105	220
Greensand and gravel, water-bearing	220	440
Pascagoula formation		
Clay, hard blue	160	600
Sand, gray water-bearing	20	620
Clay, hard blue	180	800
Sand and blue mud	55	855
Clay, hard blue	150	1005
Sand, water-bearing, mixed with clay or mud, each stratum being a maximum of 5 feet thick	148	1153
Greensand, water-bearing	29	1182

Fred Horne at Carriere

Pearl River County 31a*
Altitude: 175 feet

Driller:

	Thick. feet	Depth feet
Citronelle formation		
Clay, red, interbedded with several layers of water-bearing sand	100	100
Graham Ferry formation		
Clay, hard blue	400	500
Sand, fine gray water-bearing	255	755
Clay, blue	80	835
Sand, fine gray water-bearing	80	915

*U. S. Geol. Survey Water-Supply Paper 576, p. 380, 1928

Prisoner of War Camp, 5 to 6 Miles East of Carriere

Pearl River County 32a
Altitude: 150 feet

Driller: Fred Sutter

	Thick. feet	Depth feet
Graham Ferry formation		
Clay, hard blue	200	200
Clay, soft blue	130	330
Sand	55	385
Sand and clay, mixed	153	538
Sand and black chert gravel	65	603

J. CAMP

Pearl River County 46a
Altitude: 65 feet

Driller: Fred Sutter

	Thick. feet	Depth feet
Recent deposits		
Top soil	12	12
Citronelle formation		
Sand	28	40
Shale	15	55
Sand	35	90
Shale	15	105
Sand	17	122
Shale	37	159
Sand	24	183
Graham Ferry formation		
Shale	124	307
Sand	106	413
Shale	86	499
Sand	44	543
Shale	8	551
Sand	12	563
Shale	11	574
Sand	126	700
Shale	94	794
Sand	40	834
Shale	50	884
Sand	65	949
Shale	3	952
Sand	24	976
Shale, sandy	54	1030
Sand	80	1110

Mrs. S. M. Williams at Picayune

Pearl River County 57
Altitude: 16± feet

Driller:

	Thick. feet	Depth feet
Recent and Citronelle deposits		
Sand and gravel, surface	100	100
Citronelle formation		
Clay	40	140
Sand	30	170
Graham Ferry formation		
Clay	50	220
Sand	40	260
Clay	20	280
Sand	120	400
Clay	80	480
Sand	35	515
Clay	10	525

H. Puyper at Picayune

Pearl River County 59
Altitude: 64 feet

Driller:

	Thick. feet	Depth feet
Recent deposits		
Clay	15	15
Quicksand	6	21
Citronelle formation		
Sand and gravel	60	81
Graham Ferry formation		
Clay	200	281

Dr. V. B. Martin at Nicholson

Pearl River County 75
Altitude: 49 feet

Driller: Fred Sutter

	Thick. feet	Depth feet
Recent deposits		
Top soil	8	8
Sand	72	80
Citronelle formation		
Shale	123	203
Sand	100	303
Graham Ferry formation		
Shale	7	310
Sand	31	341
Shale	61	402
Sand	144	546
Shale	352	898
Sand	107	1005

STATE OF MISSISSIPPI

Stone County 1*
Altitude: 305 feet — Driller:

	Thick. feet	Depth feet
Citronelle formation		
Clay, red sandy	70	70
Graham Ferry (?) formation		
Sand, white	120	190
Pascagoula formation		
Clay, gray	80	270
Sand, "pepper and salt" appearance; water bearing (?)	250	520
Clay, light-blue	265	785
Clay; contains gravel at intervals; water bearing between depths of 800 and 870 feet; lower 40 feet probably Hattiesburg	370	1155

*U. S. Geol. Survey Prof. Paper 98, pl. 43, Columnar section 4, 1916

J. E. NORTH LUMBER COMPANY AT BOND

Stone County 1a*
Altitude: 306 feet — Driller:

	Thick. feet	Depth feet
Citronelle and Pascagoula formations		
Sand, yellow	160	160
Pascagoula formation		
Clay, blue	50	210
Clay, pipe	320	530
Sand, water-bearing	160	690

*Mississippi Arg. Exper. Sta. Bull. 89, p. 76, 1905

TOWN OF WIGGINS

Stone County 4
Altitude: 288± feet — Driller: Gray Artesian Well Company

	Thick. feet	Depth feet
Citronelle and Pascagoula formations		
Sand and clay	100	100
Sand	97	197

Civilian Conservation Corps Camp F-16

Stone County 16
Altitude: Driller: Gray Artesian Well Company

	Thick. feet	Depth feet
Citronelle formation		
Clay, white and red	10	10
Sand, white and yellow	20	30
Sand, white coarse	10	40
Gravel, small	10	50
Gravel, large	15	65
Graham Ferry formation		
Sand	10	75
Sand, blue	5	80
Pascagoula formation		
Marl, blue	58	138
Sand, fine water-bearing blue	18	156
Marl, blue	39	195
Marl, blue, and water-bearing sand	5	200

TABLE 13—WELLS IN GEORGE COUNTY

No.	Location	Owner or Name	Driller	Date Completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
1.	200 ft. N., 100 ft. W. of SW. 1/4, Sec. 6, T. 1 S., R. 5. W.	Williams Unit Co. No. 1	United Gas Pub. Serv. Co.	1935	.....	6928	.....	.....	.....	.....	.....	
2.	W. end, Sec. 3, T. 1 S., R. 8 W.	R. M. Coward	R. C. Avent	1911	1½	335	335	.....	.....	.....	.....	Pascagoula
3.	Center SW. 1/4, Sec. 9, T. 1 S., R. 8 W.	Cleve Love and others	J. J. Newman Lbr. Co. No. 2	1937	.....	4685	.....	.....	.....	.....	.....	
3a.	Near Center of SW. 1/4, Sec. 9, T. 1 S., R. 8 W.	J. J. Newman Lbr. Co.	Ryan & Anderson, Inc.	1938	.....	7038	.....	.....	.....	.....	.....	
4.	SE. 1/4, NW. 1/4, Sec. 25, T. 1 S., R. 8 W.	Solomon Box	Solomon Box	1920	1½	23	.....	.....	.....	.....	.....	Pascagoula
5.	SE. 1/4, SE. 1/4, Sec. 19, T. 1 S., R. 7 W.	Big Creek Lbr. Co.	.....	.....	2	80	.....	.....	.....	.....	Sand	Pascagoula
6.	SW. 1/4, Sec. 18, T. 1 S., R. 7 W.	J. C. Dorsett	Lee Dunum	1910	2	260	.....	.....	.....	60	Sand and gravel	Pascagoula
7.	SE. 1/4, SE. 1/4, Sec. 39, T. 1 S., R. 7. W.	Mrs. A. K. Givens	Will Reeves	1940	2	72	72	.....	.....	12	.....	Pascagoula
8.	SE. 1/4, SW. 1/4, Sec. 19, T. 1 S., R. 6 W.	McCloud Lbr. Co.	Abb Vice	1940	1	13.5	.....	.....	.....	13.5	White sand	Alluvium
9.	SW. 1/4, NW. 1/4, Sec. 24, T. 1 S., R. 5 W.	.....	.....	.....	1	20	.....	.....	.....	20	Sandy loam	Citronelle
10.	Center SW. 1/4, Sec. 25, T. 1 S., R. 6 W.	Luce Packing Co. No. 1	United Gas Pub. Serv. Co.	1933	.....	3137	.....	.....	.....	.....	.....	
11.	SW. 1/4, SE. 1/4, Sec. 27, T. 1 S., R. 6 W.	Cecil McCloud	Mr. Arnold	1936	.....	60	.....	.....	.....	.....	.....	Citronelle
12.	NE. 1/4, SE. 1/4, Sec. 28, T. 1 S., R. 6 W.	Lucedale Water Co.	.....	.....	6	.....	.....	.....	.....	.....	.....	Citronelle
13.	SE. 1/4, NW. 1/4, Sec. 29, T. 1 S., R. 6 W.	R. G. Corley	R. G. Corley	1939	.....	85	.....	.....	.....	15	Sand	Citronelle
14.	NE. 1/4, SW. 1/4, Sec. 33, T. 1 S., R. 6 W.	Mary Graphenread	Charles Graphenread	1921	2½	20	.....	.....	.....	20	Surface sand	Citronelle
15.	NE. 1/4, NE. 1/4, Sec. 34, T. 1 S., R. 6 W.	Mrs. L. E. Moffett	Mr. Reeves	1939	.....	48	.....	.....	.....	.....	.....	Citronelle
16.	NW. 1/4, NE. 1/4, Sec. 35, T. 1 S., R. 6 W.	A. G. Holder, Jr., & J. H. Luce	Robert Davis	1941	1½	32	.....	.....	.....	32	Surface sand	Citronelle
17.	NE. 1/4, SW. 1/4, Sec. 33, T. 1 S., R. 5 W.	Shelby Barrow	.....	.....	.....	60	.....	.....	.....	.....	Sand	Citronelle
18.	SW. 1/4, NE. 1/4, Sec. 35, T. 1 S., R. 5 W.	State of Mississippi	.....	1940±	.....	.....	.....	.....	.....	.....	.....	Pascagoula
19.	SW. 1/4, NE. 1/4, Sec. 3, T. 2 S., R. 5 W.	J. V. Cooley	J. V. Cooley	1926	2	60	.....	.....	.....	.....	Sand	Citronelle
20.	NE. 1/4, NW. 1/4, Sec. 2, T. 2 S., R. 6 W.	Miss. Export Railroad	Abb Vice	1915±	2	90	.....	.....	.....	.....	.....	Citronelle
21.	NW. 1/4, NW. 1/4, Sec. 2, T. 2 S., R. 6 W.	S. G. Perry	W. Reeves	1941	2	55	.....	.....	.....	13	.....	Citronelle
22.	NE. 1/4, NE. 1/4, Sec. 5, T. 2 S., R. 7 W.	A. A. Cochran	.....	.....	.....	.....	.....	.....	.....	.....	Sand	Alluvium
23.	SE. 1/4, Sec. 5, T. 2 S., R. 7 W.	M. H. Allman	Paul B. Kinch	1915±	3	203	.....	.....	.....	13	Black sand	Pascagoula

TABLE 13—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
1.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
2.	.....	.....	15	8-19-1941	73	1.0	Top of well tee	6	.....	71	Domestic	
3.	.....	.....	.....	.....	111	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
3a.	.....	.....	.....	.....	111	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
4.	.....	.....	-20	8-22-1941	.....	.....	.....	.....	.....	68	Domestic	
5.	.....	.....	.....	.....	50	.....	.....	.....	.....	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 171, 1928
6.	12	3	3	8-19-1941	64	3.0	Top of well tee	1	.....	68½	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 171, 1928
7.	.....	.....	-60	8-20-1941	.....	.....	.....	.....	.....	68	Domestic and stock	
8.	.....	.....	-10	8-14-1941	148	.....	Land surface at well	.....	.....	.....	Domestic	
9.	.....	.....	-19.26	8-14-1941	.....	3.2	.....	.....	.....	.....	Abandoned	
10.	.....	.....	.....	.....	278	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
11.	.....	.....	.....	.....	322±	.....	.....	.....	.....	.....	Domestic	
12.	.....	.....	92	8-13-1941	260	.....	.....	.....	100	.....	Public supply	Spring
13.	.....	.....	-67	8-14-1941	248	.....	.....	.....	800	.....	Domestic and stock	3 feet artesian head at top of sand
14.	.....	.....	-15.45	8-21-1941	.....	3.0	Top of well boxing	.....	.....	.....	Domestic	Dug well, bucket hoist
15.	.....	.....	.....	.....	326±	.....	.....	.....	.....	.....	Domestic	
16.	.....	.....	-5±	.....	335±	.....	.....	.....	.....	.....	Domestic	
17.	.....	.....	-50	.....	.....	.....	Land surface at well	.....	.....	.....	Domestic	
18.	.....	.....	0.0	.....	.....	.....	Land surface at well	.....	.....	.....	.....	Oil prospect well
19.	.....	.....	-25	.....	.....	.....	Land surface at well	.....	.....	.....	Domestic	
20.	.....	.....	-12	.....	299±	.....	Land surface at well	.....	.....	.....	Railroad	
21.	.....	.....	-42	8-13-1941	313±	.....	Land surface at well	.....	.....	.....	Domestic	
22.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	Spring
23.	.....	.....	-63	.....	.....	.....	.....	.....	3	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 171, 1928 Log

TABLE 13—(Continued)

No.	Location	Owner or Name	Driller	Date Completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
24.	SE. Cor., Sec. 10, T. 2 S., R. 9 W.	L. N. Dantzler Lbr. Co. No. 8	Gulf Rfg. Co. of La.	1935	.....	3450	.....	.....	.....	.....	.....	
25.	1320 ft. N., 425 ft. W., of SE. cor., Sec. 12, T 2 S., R. 8 W.	Pascagoula Hdw. Lbr. Co. No. 1	Gulf Rfg. Co. of La.	1933	.....	2025	.....	.....	.....	.....	.....	
26.	NW. 1/4, SW. 1/4, Sec. 11, T. 2 S., R. 6 W.	Ellis Easley	Ellis Easley	.....	18	32	.....	.....	.....	.....	Sandy loam	Citronelle
27.	SE. 1/4, NW. 1/4, Sec. 19, T. 2 S., R. 8 W.	M. E. Cooper	Ed Holland	1927	1½	22	.....	.....	.....	22	Surface Sand	Citronelle
28.	NW. 1/4, NE. 1/4, Sec. 20, T. 2 S., R. 8 W.	E. A. Stokley	E. A. Stokley	.....	.....	48	.....	.....	.....	.....	Sand and gravel	Citronelle
29.	SW. 1/4, SW. 1/4, Sec. 21, T. 2 S., R. 7 W.	Carl Griffin	Robert Davis	1940	2	190	.....	.....	.....	10±	.....	Pascagoula
30.	SW. 1/4, NW. 1/4, Sec. 19, T. 2 S., R. 4 W.	Kirkland Naval Store Co.	Robert Davis	1939	.....	145	30	open	.....	5	White sand	Pascagoula
31.	SW. 1/4, SW. 1/4, Sec. 29, T. 2 S., R. 7 W.	Dave Davis	M. Holland	1939	1½	153	.....	open	.....	.....	.....	Pascagoula
32.	SE. 1/4, SW. 1/4, Sec. 34, T. 2 S., R. 8 W.	Melvin S. King	John Reeves	.....	.....	17	.....	.....	.....	.....	Sand	Terrace
33.	SE. 1/4, SW. 1/4, Sec. 6, T. 3 S., R. 5 W.	Buchanan Co.	Abb Vice	1940	.....	75	.....	.....	.....	.....	Sandy loam	Citronelle
34.	NW. 1/4, NW. 1/4, Sec. 16, T. 3 S., R. 7 W.	State of Mississippi	Humble Oil Co. Crew	1939	4	93	.....	.....	.....	.....	.....	Pascagoula
35.	SE. 1/4, SE. 1/4, Sec. 11, T. 3 S., R. 8 W.	Crump and Green	Fred Sutter	1941	2	145	.....	.....	.....	.....	.....	Pascagoula
36.	SE. 1/4, SW. 1/4, Sec. 12, T. 3 S., R. 8 W.	Walter J. Green	Paul B. Kinch	1914	2	93	30	.....	.....	3	Sand	Pascagoula
37.	NW. 1/4, SE. 1/4, Sec. 12, T. 3 S., R. 8 W.	Mr. Crump	Fred Sutter	1941	2	104	.....	.....	.....	.....	.....	Pascagoula
38.	NW. 1/4, SW. 1/4, Sec. 15, T. 3 S., R. 7 W.	Mengel Lbr. Co. Camp	.....	.....	2	95	.....	.....	.....	.....	.....	Pascagoula
39.	Sec. 15, T. 3 S., R. 7 W.	Pascagoula Hdw. Lbr. Co. No. 2	Gulf Rfg. Co. of La.	1933	.....	2439	.....	.....	.....	.....	.....	
40.	N. 1/2, Sec. 16, T. 3 S., R. 7 W.	R. O. Embry	.....	.....	.....	.....	.....	.....	.....	.....	White sand	High terrace
41.	N. 1/2, Sec. 16, T. 3 S., R. 7 W.	G. V. Bond	Mr. Helvenston	1875±	.....	25	.....	.....	.....	.....	.....	High terrace
42.	SW. 1/4, SW. 1/4, Sec. 13, T. 3 S., R. 7 W.	Mrs. Henry Wallsmith	.....	1941	.....	30	.....	.....	.....	.....	Sand and gravel	Low terrace
43.	NW. 1/4, NW. 1/4, Sec. 13, T. 3 S., R. 8 W.	Black Creek Lbr. Co.	Fred Sutter	1940	2	140	.....	.....	.....	.....	.....	Pascagoula
44.	SW. 1/4, NW. 1/4, Sec. 23, T. 3 S., R. 8 W.	Broom Memo. High School	Mr. Reeves	.....	2	120±	.....	.....	90	90	.....	Pascagoula
45.	NW. 1/4, SW. 1/4, Sec. 23, T. 3 S., R. 8 W.	Mr. McGoot(?)	.....	.....	.....	18	.....	.....	.....	.....	Surface sand	Alluvium (?)
46.	SE. 1/4, SE. 1/4, Sec. 23, T. 3 S., R. 8 W.	Mrs. Everett Cain	Mr. Holland	1936	2	185	.....	.....	.....	53	.....	Pascagoula
47.	NE. 1/4, NW. 1/4, Sec. 29, T. 3 S., R. 5 W.	Raymond Tanner	Raymond Tanner	.....	.....	31	.....	.....	.....	31	Surface sand	High terrace

TABLE 13—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
24.	.....	.....	.....	.....	172	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
25.	.....	.....	.....	.....	55	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
26.	.....	.....	-30	8-14 1941	.....	.....	.....	.....	.....	.....	Domestic	
27.	.....	.....	.....	.....	.....	.....	.....	.....	.....	69	Domestic	
28.	.....	.....	-40	8-15 1941	158	.....	Land surface at well	.....	.....	.....	Domestic	
29.	.....	.....	11.08	8-21 1941	54±	1.0	Top of 2" bushing at well head	2	.....	69	Domestic	
30.	10	6	1	8-23 1941	.....	3.0	Horizontal nipple	1.5	.....	70	Domestic and stock	Log
31.	.....	.....	2.91	8-21 1941	38	2.0	Top of 1" well tee	0.3	.....	69	Domestic	
32.	.....	.....	-9.0	8-15 1941	92	0.0	Land surface at well	.....	.....	.....	Domestic	
33.	.....	.....	-55	8-14 1941	.....	0.0	Land surface at well	.....	.....	.....	Domestic and stock	
34.	.....	.....	24	8-20 1941	55±	2.0	Top of well elbow	120	.....	69		Flows freely
35.	.....	.....	4.5	8-13 1941	49	0.0	Land surface at well	15	.....	69	Stock	
36.	.....	65	10.6	8-28 1941	.....	.....	Floor of concrete pump	25	.....	69	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 171, 1928 Log
37.	.....	.....	11	8-13 1941	38	0.0	Land surface at well	6	.....	67	Domestic	
38.	.....	.....	5.35	8-21 1941	.....	2.0	Top of well elbow	30	.....	69	Domestic	
39.	.....	.....	.....	.....	30	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
40.	.....	.....	.....	.....	.....	.....	.....	.....	.....	70	Domestic	
41.	.....	.....	-20.5	8-21 1941	.....	1.0	Top of brick casing	.....	.....	.....	Domestic	Dug well with bucket hoist
42.	.....	.....	-26.5	8-21 1941	.....	2.5	Top of well boxing	.....	.....	.....	Domestic	
43.	.....	.....	-3.5	8-13 1941	57	0.0	Land surface at well	.....	30	69	Industrial	
44.	.....	.....	-75	12-17 1940	92	.....	.....	.....	.....	.....	Domestic	
45.	.....	.....	-14	8-13 1941	89	.....	.....	.....	.....	.....	Domestic	
46.	.....	.....	-18	8-13 1941	66±	1.0	Top of pump base	.....	.....	.....	Domestic	
47.	.....	.....	-22.0	8-14 1941	160±	.....	.....	.....	.....	.....	Domestic	

TABLE 14 — WELLS IN HANCOCK COUNTY

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
1.	SW. 1/4, SW. 1/4, Sec. 27, T. 6 S., R. 15 W.	B. P. Williams	John A. Sutter	1917	2½	440	.....	.....	20	80	.....	Graham Ferry
1a.	SE. 1/4, SE. 1/4, Sec. 3, T. 6 S., R. 14 W., 1/4 mi. SE. of Standard	Ephraim Cuevas	.....	1900	12	300+	.....	.....	.....	.....	Gravel	Citronelle
2.	NE. 1/4, SE. 1/4, Sec. 28, T. 6 S., R. 15 W.	G. T. Brown	Lewis Fields	1938	2	972	open	.....	.....	.....	.....	Pascagoula
3.	NW. 1/4, NW. 1/4, Sec. 27, T. 6 S., R. 16 W.	John Wheat	John Swenson	.....	2½	600	open	.....	.....	.....	.....	Graham Ferry
4.	NW. 1/4, SW. 1/4, Sec. 3, T. 7 S., R. 15 W.	Catahoula	John A. Sutter	1909±	6	.....	.....	.....	.....	.....	.....	.....
5.	SW. 1/4, NE. 1/4, Sec. 12, T. 7 S., R. 17 W.	Asa McQueen	Lewis Fields	1939	2	640	640	630	10	17+	.....	Graham Ferry
6.	SW. 1/4, SW. 1/4, Sec. 9, T. 7 S., R. 14 W.	J. P. Moran	Fred Sutter	1928	2½	543	.....	.....	20	76	Sand and gravel	Graham Ferry
7.	NE. 1/4, NE. 1/4, Sec. 15, T. 7 S., R. 15 W.	W. D. Davidson	John A. Sutter	1919±	3	900±	.....	.....	.....	.....	.....	Pascagoula (?)
8.	SE. 1/4, NW. 1/4, Sec. 13, T. 7 S., R. 17 W.	Allan Craft	John A. Sutter	1924	3	506	.....	.....	20	.....	.....	Graham Ferry
9.	NE. 1/4, NE. 1/4, Sec. 24, T. 7 S., R. 17 W.	H. Weston Lbr. Co.	Fred Sutter	1928	4	767	.....	.....	40	70	Sand and gravel	Graham Ferry
10.	SW. 1/4, SW. 1/4, Sec. 20, T. 7 S., R. 14 W.	A. D. Konenn	Fred Sutter	1935	2	421	.....	.....	20	81	Sand and gravel	Graham Ferry
11.	SW. 1/4, SE. 1/4, Sec. 22, T. 7 S., R. 14 W.	George A. Cuevas	John A. Sutter	1908	3	480	.....	.....	.....	.....	.....	Graham Ferry
12.	NE. 1/4, SW. 1/4, Sec. 23, T. 7 S., R. 14 W.	Frank Ducksworth	John A. Sutter	1908	3 (?)	500±	.....	.....	.....	.....	.....	Graham Ferry
13.	SE. 1/4, NE. 1/4, Sec. 27, T. 7 S., R. 14 W.	J. S. Ware	Fred Sutter	1927	4	555	.....	.....	30	.....	.....	Graham Ferry
14.	SW. 1/4, SW. 1/4, Sec. 29, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	.....	.....	10	960	.....	.....	.....	.....	.....	Pascagoula
15.	Sec. 29, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16.	Sec. 29, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	.....	.....	10	.....	.....	.....	.....	.....	.....	.....
17.	Sec. 29, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	.....	.....	3 or 4	.....	.....	.....	.....	.....	.....	.....
18.	Sec. 29, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	.....	.....	3 or 4	.....	.....	.....	.....	.....	.....	.....
19.	Sec. 29, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20.	SW. 1/4, SW. 1/4, Sec. 29, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	John A. Sutter	1916	6	560	560	.....	.....	65	Sand and gravel	Graham Ferry
21.	NW. 1/4, SE. 1/4, Sec. 30, T. 7 S., R. 14 W.	Edw. Hines Lbr. Co.	.....	.....	3	.....	.....	.....	.....	.....	.....	.....
22.	SW. 1/4, NW. 1/4, NE. 1/4, Sec. 34, T. 7 S., R. 15 W.	Lloyd B. Griffith	C. R. Switzer	1938	3	582	.....	.....	.....	.....	.....	Graham Ferry
23.	NE. 1/4, SE. 1/4, Sec. 36, T. 7 S., R. 15 W.	Edw. Hines Lbr. Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE 14—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
1.	−2	.....	−20	6-8 1939	.....	.....	Land surface at well head	.....	.....	.....	Domestic	
1a.	.....	.....	−22	.....	175	.....	.....	.....	.....	.....	.....	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 23
2.	.....	.....	10+	6-8 1939	.....	.....	Land surface at well head	20	.....	.....	Domestic and stock	
3.	.....	.....	.....	.....	.....	.....	.....	10	.....	76	Domestic	
4.	.....	.....	.....	.....	.....	.....	.....	250±	.....	74½	Abandoned	Eroded an irregular hole about 50 ft. wide, 75 ft. long, and 5 ft. deep
5.	.....	.....	24.5	6-7 1939	47	0.0	Land surface at well head	27	.....	78	Domestic and stock	
6.	14	.....	10.5	6-7 1939	67	2.5	Top of well tee	2	.....	74½	Domestic and stock	
7.	.....	.....	.....	.....	.....	.....	.....	30	.....	.....	Domestic	
8.	20	100	12.2	6-7 1939	45	1.4	Top of well tee	11.5	.....	73½	Domestic and stock	
9.	73.6	.....	.....	.....	.....	.....	.....	.....	.....	79	Domestic	Supplies 5 families
10.	36.8	60	36.3	6-9 1939	40	2.4	Top of well cross	5	.....	75	Domestic and stock	
11.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	Supplies 3 families
12.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
13.	80	400	59.7	6-8 1939	10	3±	Top of well cross	26	.....	.....	Domestic and stock	
14.	.....	.....	.....	.....	8	.....	.....	50	.....	.....	Abandoned	Leaks badly
15.	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	Abandoned	Flows freely
16.	.....	.....	.....	.....	8	.....	.....	4	.....	72½	Abandoned	Flows freely
17.	.....	.....	.....	.....	8	.....	.....	40	.....	72½	Abandoned	Flows freely
18.	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	Abandoned	Flows freely
19.	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	Abandoned	Flows freely
20.	50	600	.....	.....	8	.....	.....	122	.....	74½	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928. Flows freely. Log
21.	.....	.....	.....	.....	.....	.....	.....	.....	.....	78	Domestic	Leaks 60 g. p. m.
22.	.....	.....	53.0	2-17 1943	.....	0.0	Top of well cross	80	.....	.....	Domestic	
23.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	Well cut off below surface; hole boxed and filled with sand. Water flows through sand, stake level below surface

TABLE 14—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
24.	SW. 1/4, SW. 1/4, Sec. 31, T. 7 S., R. 14 W.	Mrs. A. J. McLeod		1912	3	495	.....	.....	.....	.....	Quicksand	Graham Ferry
25.	SW. cor. SW. 1/4, SE. 1/4, Sec. 31, T. 7 S., R. 14 W.	Mrs. A. J. McLeod	John A. Sutter	.....	4	.....	.....	.....	.....	.....	.....	.....
26.	NW. 1/4, SE. 1/4, Sec. 31, T. 7 S., R. 14 W.	L. P. LeBourgeois	John A. Sutter	1936	.....	700	.....	.....	.....	.....	.....	Graham Ferry
27.	NW. 1/4, NW. 1/4, Sec. 32, T. 7 S., R. 14 W.	James L. Crump	John A. Sutter	.....	6	.....	.....	.....	.....	.....	.....	.....
28.	NW. 1/4, NW. 1/4, Sec. 32, T. 7 S., R. 14 W.	James L. Crump	John A. Sutter	.....	3	.....	.....	.....	.....	.....	.....	.....
29.	NW. 1/4, NW. 1/4, Sec. 32, T. 7 S., R. 14 W.	Dr. Irwin	Fred Sutter	1939	4	508	.....	.....	40	.....	.....	Graham Ferry
30.	SE. 1/4, NE. 1/4, Sec. 10, T. 8 S., R. 16 W.	H. Weston Lbr. Co.		.....	3	.....	.....	.....	.....	.....	.....	.....
31.	1207 ft. W., 100 ft. S. of NE. cor., Sec. 11, T. 8 S., R. 15 W.	R. J. Williams L. Co. et al No. 1.	Gulf Rfg. Co. of La.	1934	12½ & 9	4251	4251	.....	.....	.....	.....	.....
32.	Elihu Carver Land Grant, T. 8 S., R. 14 W.	L. K. Nicholson	Fred Sutter	1937	4	639	.....	.....	36	56	Sand and gravel	.....
32a.	2 mi. N. of Ct. House on N. Beach St. on point of land, at Bay St. L..	Peerless Oyster Co.	John L. Ford for John A. Sutter	1904	3	897	897	.....	.....	40 79	Sand	Graham Ferry
33.	SE. 1/4, SW. 1/4, Sec. 20, T. 8 S., R. 16 W.	Charles Murphy	Lewis Fields	1939	2	620	.....	open	.....	.....	.....	Citronelle (?)
34.	Joseph Favre Land Grant, T. 8 S., R. 14 W.	Hancock County Home	John A. Sutter	1923	3	380	.....	.....	20	60	.....	Graham Ferry
35.	Joseph Favre Land Grant, T. 8 S., R. 14 W.	Dr. Karl Allan Estate	John A. Sutter	.....	.....	.....	.....	.....	.....	.....	.....	.....
36.	Elihu Carver Land Grant, T. 8 S., R. 14 W.	Dr. Karl Allan Estate		.....	3	.....	.....	.....	.....	.....	.....	.....
37.	Elihu Carver Land Grant, T. 8 S., R. 14 W.	L. L. Kergosien	Fred Sutter	1938	2	450	.....	.....	20	110	Sand and gravel	Graham Ferry
38.	Elihu Carver Land Grant, T. 8 S., R. 14 W.	Mrs. N. J. Harrison	Albert Monte	.....	2	400	.....	.....	.....	.....	.....	Graham Ferry
39.	John Larderson Land Grant, T. 8 S., R. 14 W.	F. J. Bopp	John A. Sutter	1917	2½	412	.....	.....	20	42	.....	Graham Ferry
40.	Carrol Street and U. S. Highway 90	City of Bay St. Louis	John A. Sutter	1923	6	1100	.....	.....	60	80	.....	Graham Ferry
41.	Carrol Street and U. S. Highway 90	City of Bay St. Louis	John A. Sutter	1927	6	1120	.....	.....	.....	60	.....	Graham Ferry
42.	N. Beach Blvd. on a pier, T. 8 S., R. 13 W.	Marine Foods Inc.		1920±	3	.....	.....	.....	.....	.....	.....	Graham Ferry
42a.	N. Beach Blvd. about 1.15 mi. N. of Court House	M. Pitcher	John L. Ford for John A. Sutter	.....	3	1050	1050	.....	.....	105	Sand	Graham Ferry
42b.	In Leonard Subdvn, near cor of Dunbar Ave. and Leonard St.	City of Bay St. Louis	John L. Ford for John A. Sutter	1905	4	910	880	.....	.....	60	Sand	Graham Ferry
43.	John Larderson Land Grant, T. 8 S., R. 14 W.	W. B. Stout	John A. Sutter	1924±	3	700+	.....	.....	.....	.....	.....	Graham Ferry
44.	John Watson Land Grant, T. 8 S., R. 14 W.	Dr. Karl Allan Estate	John A. Sutter	.....	3 (?)	.....	.....	.....	.....	.....	.....	.....
45.	SE. 1/4, NE. 1/4, Sec. 27, T. 8 S., R. 15 W.	J. B. Fasterling, Jr.	Fred Sutter	1928	3	739	.....	.....	20	79	Sand and gravel	Graham Ferry

TABLE 14—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
24.	.....	150	.....	.....	.....	.....	.....	8	.....	.....	Abandoned	Runs freely, leaks around casing. U. S. Geol. Sur. Water-Supply Paper 576, p. 187, 1928, Well 16
25.	.....	.....	.....	.....	.....	.....	.....	180	.....	.....	Domestic	Runs generator
26.	.....	.....	51.6	6–3 1939	22	2±	Top of well cross	.....	.....	.....	Domestic	
27.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
28.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
29.	50	200	.....	.....	.....	.....	.....	.....	.....	.....	.....	
30.	.....	.....	.....	.....	.....	.....	.....	18	.....	73¾	Stock	
31.	.....	.....	.....	.....	26	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
32.	50	300	44.4	6–1 1939	18	1.5	Top of well cross	.....	.....	.....	Domestic	
32a.	250	.....	.....	.....	.....	0	.....	.....	.....	.....	Abandoned	U. S. Geol. Survey Bulletin 264, p. 87, 1905 Log
33.	.....	.....	.....	.....	.....	.....	.....	20	.....	76½	Domestic and stock	
34.	18	75	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
35.	.....	.....	.....	.....	.....	.....	.....	38	.....	74½	Abandoned	Flows freely
36.	.....	.....	19	.....	.....	.....	.....	.....	.....	73	Abandoned	Flows freely
37.	16	30	19.9	5–31 1939	5	2.1	Top of well cross	.....	.....	74½	Domestic	
38.	.....	.....	10.0	5–31 1939	6	3.1	Top of well tee	.....	.....	73	Domestic and stock	
39.	14	40	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
40.	59.8	550	30	5–18 1939	.....	0.0	Land surface at well head	.....	.....	.....	Public supply	
41.	.....	250	.....	.....	.....	.....	.....	.....	.....	.....	Public supply	
42.	.....	.....	.....	.....	.....	.....	.....	100	.....	81½	Domestic & industrial	Flows freely
42a.	70	200	.....	.....	15±	.....	.....	.....	.....	.....	.....	Log
42b.	250	.....	.....	.....	25±	.....	.....	.....	.....	.....	.....	Well reported to be capped Log
43.	.....	52	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
44.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
45.	62	.....	36.4	6–3 1939	6	2.1	Top of well cross	.....	.....	60	Domestic and stock	

TABLE 14—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
46.	S. L. Napoleon Land Grant, T. 8 S., R. 16 W.	Mr. Wheeler	Lewis Fields	1938	2	650	.....	.....	.....	.....	.....	Citronelle (?)
47.	SE. 1/4, SE. 1/4, Sec. 34, T. 8 S., R. 16 W.	Mississippi Forest Service		.....	2½	700	.....	.....	.....	.....	.....	.....
48.	NE. 1/4, SE. 1/4, Sec. 35, T. 8 S., R. 16 W.	P. J. Trentel	H. Weston Lbr. Co.	.....	2½	.....	.....	.....	.....	.....	.....	.....
49.	SW. 1/4, SE. 1/4, Sec. 36, T. 8 S., R. 15 W.	A. J. Moran	Fred Sutter	1929	3	839	.....	.....	20	64	Sand and gravel	Graham Ferry
50.	SE. 1/4, SE. 1/4, Sec. 32, T. 8 S., R. 14 W.	W. P. Rankin	Fred Sutter	1930	3	860	.....	.....	30	60	Sand and gravel	Graham Ferry
51.	SE. 1/4, SW. 1/4, Sec. 33, T. 8 S., R. 14 W.	Dr. Aldea Maher	John A. Sutter	1907	3	908	.....	.....	.....	.....	.....	Graham Ferry
52.	SW. 1/4, SE. 1/4, Sec. 33, T. 8 S., R. 14 W.	Gulf Turpentine Co.	Fred Sutter	1936	3	780	.....	.....	40	.....	.....	Graham Ferry
53.	SE. 1/4, NE. 1/4, Sec. 35, T. 8 S., R. 14 W.	Joseph P. Poirson	John A. Sutter	.....	4	650	.....	.....	.....	.....	.....	Graham Ferry
54.	SE. 1/4, NE. 1/4, Sec. 35, T. 8 S., R. 14 W.	Jake Marrale	John A. Sutter	1925	3	660	.....	.....	20	.....	.....	Graham Ferry
55.	NW. 1/4, SE. 1/4, Sec. 35, T. 8 S., R. 14 W.	George Talbert, Jr.	John A. Sutter	1936	3	657	.....	.....	40	.....	.....	Graham Ferry
56.	NW. 1/4, NW. 1/4, Sec. 36, T. 8 S., R. 14 W.	A. J. Palombo	John A. Sutter	1925+	3	1093	.....	.....	20	65	.....	Graham Ferry
57.	T. 8 S., R. 13 W., 200 ft. N. of L. & N. R. R. Sta., Bay St. Louis	Louisville & Nashville R. R.	John A. Sutter	1914	6	880	.....	.....	60	80	.....	Graham Ferry
58.	T. 8 S., R. 13 W., 500 ft. W. of L. & N. R. R. Sta., Bay St. Louis	Louisville & Nashville R. R.	John A. Sutter	1921	6	880	.....	.....	60	80	.....	Graham Ferry
59.	T. 8 S., R. 13 W., Bay St. Louis	S. M. Mayer	John A. Sutter	1939	3	870	.....	.....	30	70	.....	Graham Ferry
60.	150 ft. W., 50 ft. N. of intersection of Carrol Av. & 2d St., Bay St. L.	City of Bay St. Louis	John A. Sutter	1925	4	1180	.....	.....	40	80	.....	Graham Ferry
60a.	107 Citizen St., Bay St. Louis	City of Bay St. Louis	John L. Ford for John A. Sutter	1905	4	920	920±	.....	.....	115	Coarse gray sand	Graham Ferry
61.	On Front St., 1 mi. S. of L. & N. R. R. tracks, Bay St. Louis	Merchant's Bank		1917	3	840	.....	.....	20	20	Sand	Graham Ferry
62.	Estabrooke & St. George Sts., at Bay St. Louis	City of Bay St. Louis	John A. Sutter	1925	4	908	.....	.....	40	80	.....	Graham Ferry
62a.	T. 8 S., R. 14 W., 200 ft. N. of L. & N. R. R. Sta.	Louisville & Nashville R. R.	Frank Sutter	1910	6	860	.....	.....	.....	60	Sand	Graham Ferry
62b.	1/2 mi. W. of old Post Office Bldg., at Bay St. Louis	F. Loeber	Charles Sanger	.....	.....	669	.....	.....	.....	13	Sand	Graham Ferry
62c.	1/4 mi. W. of old Post Office Bldg., at Bay St. Louis	Formerly city of Bay St. Louis	Charles Sanger	.....	.....	384	.....	.....	.....	23	Gray sand	Graham Ferry
63.	On Court St. between Front and Gex Sts., Bay St. Louis	Mrs. Grebinberger		1907	3	1036	1036	.....	40	40	Sand	Graham Ferry
64.	100 ft. W. of Adm. Bldg., at Bay St. Louis	St. Stanislaus College		1894	3	500	500	.....	.....	.....	Sand	Graham Ferry
65.	300 ft. W. of Adm. Bldg., at Bay St. Louis	St. Stanislaus College		1911	4	910	.....	.....	.....	.....	Greensand	Graham Ferry
66.	1 mi. SE. of Post Office Bldg. on Front St., Waveland	Mrs. G. W. Logan		1906	3	800±	.....	.....	.....	.....	Sand	Graham Ferry

TABLE 14—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water Level: Above or below (-) meas. pt. (feet)	Water Level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
46.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
47.	.....	.....	.....	.....	.....	.....	.....	.....	.....	77	Domestic and stock	Supplies 3 families
48.	.....	.....	12.6	6-6 1939	22	0.0	Land surface at well head	.....	.....	73¾	Domestic	
49.	62	200	48.4	6-3 1939	10	3.7	Top of well cross	.....	.....	.....	Domestic and stock	
50.	62	.....	41.6	6-3 1939	21	7±	Edge of pool	.....	.....	87±	Domestic	
51.	.....	.....	.....	.....	.....	.....	.....	.....	.....	86	Domestic and stock	Supplies 3 families Casing leaks badly
52.	.....	.....	.....	.....	.....	.....	.....	.....	.....	81¼	Domestic & industrial	
53.	.....	.....	23.5	6-2 1939	30	2.4	Top of well elbow	.....	.....	.....	Domestic	
54.	40	140	.....	.....	.....	.....	.....	.....	.....	78½	Domestic	
55.	.....	.....	25.2	6-2 1939	22	2.2	Top of well cross	.....	.....	78	Domestic and stock	Supplies 3 families and 1 gasoline station
56.	69	200	56.7	6-2 1939	17	2.7	Top of well cross	15	.....	84½	Domestic	
57.	46	400	21.1	5-19 1939	24	1±	Pump house floor	.....	.....	.....	Railroad	
58.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Railroad	
59.	30	125	27.7	5-27 1939	17	2±	Top of well tee	.....	.....	81	Domestic and stock	25 feet of sand at 555 feet
60.	.....	.....	56.2	5-18 1939	15	.....	Top of well cross	600	500	.....	Public supply	
60a.	.....	400	.....	.....	20±	.....	.....	.....	.....	.....	Domestic	Log
61.	55	175	37.4	5-20 1939	11	1.3	Top of well cross	8	.....	81	Domestic	Flows freely. U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 7
62.	35	275	29.9	5-18 1939	21	2±	Top of well tee	.....	.....	.....	Public supply	
62a.	50	500	.....	.....	27	.....	.....	.....	.....	.....	Boilers	Mississippi Agr. Exper. Sta. Bull. 89, p. 69, 1905 Log
62b.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Probably abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 183, 1928 Log
62c.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Probably abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 184, 1928 Log
63.	70	300	.....	.....	30	.....	.....	300	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 6 Supplies 3 families
64.	12	15	4.5	5-19 1939	12	0.0	Land surface at fountain	15	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 5 (?)
65.	60	300	25±	5-19 1939	8	2±	Top of well tee	300	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 4 (?)
66.	60	175	2.8	5-20 1939	15	2.2	Btm. of valve on 2" pipe	4	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 27

TABLE 14—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
67.	NE. 1/4, NE. 1/4, Sec. 2, T. 9 S., R. 14 W.	Waveland Waterworks	John A. Sutter	1926	4	1203	.....	.....	40	.....	.....	Graham Ferry
67a.	NW. 1/4, SE. 1/4, Sec. 3, T. 9 S., R. 14 W.	A. Metranger	Charles Sanger	1894	3	438	438±	.....	.....	19	Sand	Graham Ferry
68.	NW. 1/4, NE. 1/4, Sec. 4, T. 9 S., R. 14 W.	C. B. Dicks	John A. Sutter	.....	3	900	.....	.....	.....	.....	.....	Graham Ferry
69.	NW. 1/4, SE. 1/4, Sec. 4, T. 9 S., R. 14 W.	Geo. T. Spiers	John A. Sutter	.....	3	1100	.....	.....	.....	.....	.....	Graham Ferry
69a.	NW. 1/4, SE. 1/4, Sec. 4, T. 9 S., R. 14 W., 1.5 mi. W. of Post Office Bldg., at Waveland	Paul Conrad (?)	Charles Sanger	1889	2½	432	432	.....	.....	20	Sand	Graham Ferry
70.	T. 9 S., R. 16 W., Joseph Challon Land Grant	H. D. Dean	Lewis Fields	1937	1½	600	.....	.....	20	.....	.....	Citronelle
71.	Sec. 8, T. 9 S., R. 16 W., Joseph Challon Land Grant	Miss Weston	John Swenson	.....	3	640	.....	.....	.....	.....	.....	Citronelle
72.	Sec. 8, T. 9 S., R. 16 W., Joseph Challon Land Grant	H. Weston Lbr. Co.		1912	4	750	750	.....	.....	.....	Gray sand	Citronelle
73.	SE. 1/4, SW. 1/4, Sec. 12, T. 9 S., R. 16 W.	Mississippi Highway Dept.	Lewis Fields (?)	1938+	3	.....	.....	.....	.....	.....	.....	.....
74.	SE. 1/4, NW. 1/4, Sec. 10, T. 9 S., R. 14 W.	Waveland Waterworks	John A. Sutter	1910	4	950±	.....	.....	.....	.....	Sand	Graham Ferry
75.	NE. 1/4, SW. 1/4, Sec. 10, T. 9 S., R. 14 W.	Waveland Waterworks	John A. Sutter	1910	4	1040	.....	.....	.....	.....	Sand	Graham Ferry
75a.	SE. 1/4, Sec. 10, T. 9 S., R. 14 W. at Waveland	Mr. Douglas	C. R. Switzer	1937	2	344	.....	.....	.....	.....	.....	Graham Ferry
76.	SE. 1/4, NW. 1/4, Sec. 17, T. 9 S., R. 14 W.	Mrs. G. G. Planchard	John A. Sutter	1907	4	1100	.....	.....	.....	.....	.....	Graham Ferry
77.	SE. 1/4, NW. 1/4, Sec. 17, T. 9 S., R. 14 W.	Mrs. G. G. Planchard	John A. Sutter	1907	4	1100	.....	.....	.....	.....	.....	Graham Ferry
78.	NE. 1/4, NW. 1/4, Sec. 17, T. 9 S., R. 14 W.	Dr. Tudery	John A. Sutter	1924	3	622	.....	.....	20	40	.....	Graham Ferry
79.	NE. 1/4, SE. 1/4, Sec. 17, T. 9 S., R. 16 W.	Mrs. R. S. Boardman		1911	2½	411	.....	.....	.....	.....	Sand	Citronelle
80.	SW. 1/4, NW. 1/4, Sec. 19, T. 9 S., R. 16 W.	.....	Lewis Fields	.....	2½	.....	.....	.....	.....	.....	.....	.....
81.	Pearlington, NW. 1/4, Sec. 19, T. 9 S., R. 16 W.	John Byer	Lewis Fields	1937	3	447+	.....	open	.....	.....	.....	Citronelle
82.	SW. 1/4, SW. 1/4, Sec. 21, T. 9 S., R. 16 W.	Mrs. Karl Hendricks	Lewis Fields	1938	2	415	.....	open	.....	.....	.....	Citronelle
83.	W. 1/2, Sec. 21 (?), T. 9 S., R. 16 W.	Poitevent Faure Lbr. Co.		.....	3	500	.....	.....	.....	.....	.....	Citronelle
84.	W. 1/2, Sec. 21 (?), T. 9 S., R. 16 W.	Poitevent Faure Lbr. Co.		.....	2	300	.....	.....	.....	.....	.....	Citronelle
85.	NE. 1/4, NW. 1/4. Sec. 28, T. 9 S., R. 16 W.	Mr. Kennedy	Lewis Fields	1936	2	428	.....	open	.....	.....	.....	Citronelle
86.	Near cen. Sec. 24, T. 9 S., R. 15 W.	Louisville & Nashville R. R.		1923	.....	835	835±	.....	.....	63	Gray sand and gravel	Graham Ferry
87.	NW. 1/4, SE. 1/4, Sec. 17, T. 9 S., R. 14 W.	Clermont Harbor Hotel	John A. Sutter	1904	3	775	775	.....	.....	75	Sand	Graham Ferry
88.	15 mi. SW. of Bay St. Louis	.....	Charles Sanger	1904	.....	307	.....	.....	.....	19	Sand	Recent

TABLE 14—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water Level: Above or below (-) meas. pt. (feet)	Water Level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
67.	69	400	54.0	6–3 1939	22	1.6	Top of well cross	.....	.....	86	Public supply	
67a.	16	30	.....	.....	20±	.....	.....	.....	.....	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 28 Log
68.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	Supplies 2 families; casing leaks badly
69.	.....	.....	43.5	6–2 1939	9	1.3	Top of well cross	.....	.....	84	Domestic and stock	Supplies 3 families
69a.	16	30	.....	.....	20±	.....	.....	.....	.....	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 29 Log
70.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	Supplies 3 families
71.	.....	.....	10.8	6–6 1939	18	4.7	Top of well tee	.....	.....	70	Abandoned	
72.	.....	200	.....	.....	.....	.....	.....	200	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 20 Supplies 1 store Casing leaks badly
73.	.....	.....	.....	.....	.....	.....	.....	47	.....	78¼	Abandoned	Probably open Flows freely
74.	65	375	35.9	5–20 1939	23	2.8	Top of well cross	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 24
75.	65	400	38.4	5–20 1939	12	2.5	Top of well cross	.....	.....	84	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 25
75a.	6	7	.....	.....	20±	.....	.....	.....	.....	.....	Domestic and stock	
76.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Public supply	
77.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Public supply	
78.	35	100	12.6	5–20 1939	8	2.8	Top of well cross	11	.....	78½	Domestic	
79.	.....	50	.....	.....	.....	.....	.....	.....	.....	76	Domestic and stock	U. S. Geol. Survey Water-Supply Paper 576, p. 187, 1928, Well 22
80.	.....	.....	.....	.....	.....	.....	.....	20	.....	80	Domestic and stock	Flows freely
81.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
82.	.....	.....	.....	.....	.....	.....	.....	20	.....	74	Domestic	Flows freely
83.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
84.	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	Domestic	
85.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Industrial	
86.	50–60	350	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	Flows unrestricted. Log
87.	80	165	.....	.....	10	.....	.....	.....	.....	.....	Abandoned	Log
88.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Log

TABLE 15—WELLS IN HARRISON COUNTY

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
1.	SW. 1/4, NE. 1/4, Sec. 26, T. 4 S., R. 11 W.	C. C. C. F-10	Fred Sutter	1935	4	519	519	.....	20	40	Sand	Pascagoula (?)
1a.	Sec.26, T. 4 S., R. 11 W.	C. C. C. F-10	Fred Sutter	1935	4	579	.....	.....	.....	75	Sand and gravel	Pascagoula
1b.	SW. 1/4, SW. 1/4, Sec. 30, T. 4 S., R. 11 W.	Howison Lbr. Co.	Frank Sutter	1897	2	1480	.....	.....	.....	80	Sand	Pascagoula
2.	560 ft. N., 660 ft. W., of SE. cor. NE. 1/4, Sec. 33, T. 4 S., R. 11 W.	L. N. Dantzler Lbr. Co. No. 1	Humble Oil & Rfg. Co.	1942	.....	8974	2491	.....	.....	.....	.....	.....
3.	SE. 1/4, NW. 1/4, Sec. 6. T 5 S., R. 10 W.	E. P. Broadus	E. P. Broadus	1938	.....	132	.....	.....	open	.....	.....	Graham Ferry
3a.	SE. 1/4, SE. 1/4, Sec. 15, T. 5 S., R. 10 W.	U. S. Adv. Naval Base Depot 4	Layne Central Co.	.....	.....	248	.....	.....	.....	73	Sand	Graham Ferry
4.	SW. 1/4, SW. 1/4, Sec. 6, T. 5 S., R. 11 W.	Saucier Consolidated Sch.	C. R. Switzer	1928	3	785	785	200 700	....	100 100	....	Graham Ferry & Pascagoula
5.	SW. 1/4, SW. 1/4, Sec. 6, T. 5 S., R. 11 W.	J. W. Weekly	Burdick Shaw	1935	2	72	72	68	4	.....	.....	Graham Ferry
6.	SW. 1/4, SW. 1/4, Sec. 6, T. 5 S., R. 11 W.	M. D. Rouse	Burdick Shaw	1937	3	270	270	.....	20	.....	.....	Graham Ferry
7.	SW. 1/4, NE. 1/4, Sec. 11, T. 5 S., R. 11 W.	U. S. Forest Service	Fred Sutter	1936	5	110	.....	.....	.....	95	Yellow Sand	Citronelle
8.	NW. 1/4, SW. 1/4, Sec. 13, T. 5 S., R. 11 W.	Success School	Fred Sutter	1937	6	104	.....	.....	10	87	Yellow Sand	Citronelle
9.	NE. 1/4, NW. 1/4, Sec. 18, T. 5 S., R. 11 W.	G. & S. I. Railroad	.....	.....	.....	22	22	.....	.....	.....	.....	Graham Ferry
10.	SE. 1/4, Sec. 18, T. 5 S., R. 13 W.	Sou. Lnd & Royalty Co. No. 1	Gulf Rfg. Co. of La.	1933	.....	3517	.....	.....	.....	.....	.....	.....
11.	NE. 1/4, NE. 1/4, Sec. 21, T. 5 S., R. 13 W.	B. H. Shaw	.....	1937	2	45	.....	.....	5	.....	.....	Citronelle
11a.	NE. 1/4, Sec. 19, T. 5 S., R. 13 W.	Edw. Hines Lbr. Co. No. 3	.....	1923	.....	611	.....	.....	.....	31	Sand and gravel	Pascagoula
12.	Near SE. cor. Sec. 27, T. 5 S., R. 10 W.	L. N. Dantzler Lbr. Co. No. 3	Gulf Rfg. Co. of La.	1933	.....	2832	.....	.....	.....	.....	.....	.....
13.	SW. 1/4, NW. 1/4, Sec. 31, T. 5 S., R. 11 W.	I. C. Railroad	John A. Sutter	.....	3	590	.....	.....	.....	90	Gray sand	Pascagoula
14.	NE. 1/4, NW. 1/4, Sec. 1, T. 6 S., R. 11 W.	U. S. Forest Service	V. C. Mickle	1939	4–2	540	505	481	24	65	Sand	Pascagoula
15.	NW. 1/4, SW. 1/4, Sec. 6, T. 6 S., R. 11 W.	Mrs. L. P. Ritchie	Fred Sutter	1933	4	598	.....	.....	20	63	Sand	Pascagoula
15a.	NW. 1/4, SW. 1/4, Sec. 6, T. 6 S., R. 11 W.	Mrs. L. P. Ritchie	Fred Sutter	1936	4	524	.....	.....	.....	52	Sand and gravel	Pascagoula
16.	SW. 1/4, NW. 1/4, Sec. 6, T. 6 S., R. 11 W.	Mrs. L. P. Ritchie	.....	1902	4	836	.....	.....	.....	50	Sand	Pascagoula
17.	SE. 1/4, NE. 1/4, Sec. 7, T. 6 S., R. 11 W.	C. D. Galloway	C. R. Switzer (?)	.....	4	700	.....	.....	.....	.....	.....	Pascagoula
17a.	NE. 1/4, SE. 1/4, Sec. 12, T. 6 S., R. 13 W., near Lizana	Central School	C. R. Switzer	1939	3	250	.....	.....	.....	50	.....	Ferry Graham

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
1.	−145	.....	.....	.....	220	.....	Land surface at well	.....	20	.....	Domestic	Log
1a.	−145	.....	.....	.....	220	.....	.....	.....	20	.....	Domestic	Log
1b.	− 35	.....	.....	.....	178	.....	.....	.....	.....	.....	Abandoned	Mississippi Agr. Exper. Sta. Bull. 89, p. 77, 1905. Log
2.	.....	.....	.....	.....	160	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
3.	.....	.....	−27	4–17 1939	.....	.....	Land surface	.....	.....	.....	Domestic	Uncased bored well
3a.	.....	.....	.....	.....	105	.....	.....	.....	.....	.....	.....	Log
4.	− 10	.....	−40	.....	155±	.....	.....	.....	.....	.....	.....	.....
5.	.....	.....	−30	1939	155±	.....	Land surface	.....	.....	.....	Domestic	.....
6.	.....	.....	−10	1938	155±	.....	Land surface	.....	.....	.....	Domestic	Supplies 4 families
7.	− 50	.....	.....	.....	.....	.....	Land surface	.....	15	.....	Domestic	Log
8.	− 49	.....	.....	1937	.....	.....	Land surface	.....	10	69½	School	Log
9.	.....	.....	−22.37	12–31 1942	.....	2.8	Bench mark in rail	.....	.....	.....	Domestic	Dug well, boxed to bottom; water table well for south Mississippi
10.	.....	.....	.....	.....	128	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
11.	− 32	.....	.....	.....	.....	.....	Land surface	.....	.....	69	Domestic	.....
11a.	19	75	.....	.....	.....	.....	.....	.....	.....	.....	.....	Log
12.	.....	.....	.....	.....	90	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
13.	.....	.....	−23.1	4–14 1939	49	3.0	Top of well tee	.....	.....	73	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 37. Log
14.	− 80	.....	.....	.....	178	.....	Land surface at well head	.....	35	.....	Domestic	Log
15.	8	50	7.3	4–14 1939	77	1.5	Top of well tee	.....	.....	76¼	.....	.....
15a.	7	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	Log
16.	15	75	−20	June 1936	105	.....	Land surface at well head	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 196, 1928, Well 38
17.	.....	.....	13.8	4–15 1939	63	2.9	Top of well tee	.....	.....	73½	Domestic	Slight leak in line
17a.	.....	.....	.....	.....	142	.....	.....	.....	.....	.....	.....	.....

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Geologic formations
18.	SW. 1/4, SW. 1/4, Sec. 12, T. 6 S., R. 11 W.	John D. Demaria		.....	3	700±	.....	.....	.....	.....	.....	Pascagoula
19.	SE. 1/4, SW. 1/4, Sec. 17, T. 6 S., R. 11 W.	U. S. Bureau of Fisheries	Fred Sutter	1937	4	427	.....	.....	40	61	Sand	Graham Ferry
20.	SE. 1/4, SW. 1/4, Sec. 17, T. 6 S., R. 11 W.	U. S. Bureau of Fisheries	Fred Sutter	1938	4	431	.....	.....	40	90	Sand	Graham Ferry
21.	NE. 1/4, SW. 1/4, Sec. 17, T. 6 S., R. 11 W.	U. S. Bureau of Fisheries	Fred Sutter	1937	3	456	.....	.....	40	79	Sand	Graham Ferry
21a.	NW. 1/4, SW. 1/4, Sec. 15, T. 6 S., R. 10 W.	U. S. Army	Layne Central Co.	1943	12	505	461	.....	40	45	Coarse Sand	Graham Ferry
22.	SE. 1/4, Sec. 22, T. 6 S., R. 13 W.	Ingram-Day Lbr. Co. No. 1	Gulf Rfg. Co. of La.	1935	.....	4156	.....	.....	.....	.....	.....	.....
23.	SW. 1/4, SE. 1/4, Sec. 20, T. 6 S., R. 11 W.	Batson-Hatten Lbr. Co.	C. R. Switzer	1924	6	536	.....	.....	.....	.....	.....	Graham Ferry
23a.	SE. 1/4, Sec. 20, T. 6 S., R. 11 W. at Lyman	Gulf Coast Lbr. Co.		.....	.....	480	425	.....	.....	50	Sand and gravel	Graham Ferry
24.	NW. 1/4, SW. 1/4, Sec. 23, T. 6 S., R. 10 W.	Arthur Morgan	H. Paffhausen	.....	2½	800	.....	.....	.....	.....	.....	Pascagoula
25.	SE. 1/4, NW. 1/4, Sec. 29, T. 6 S., R. 9 W.	Mr. Eddy		1939	2	702	.....	.....	.....	.....	.....	Pascagoula
26.	SE. 1/4, SE. 1/4, Sec. 25, T. 6 S., R. 10 W.	Kathryn Krohn	Mr. Harmon	1938	3	765	.....	.....	20	.....	.....	Pascagoula
27.	NW. 1/4, NE. 1/4, Sec. 30, T. 6 S., R. 10 W.	Mr. Gunlech		.....	3±	900±	.....	.....	.....	.....	.....	Pascagoula
28.	NW. 1/4, SE. 1/4, Sec. 29, T. 6 S., R. 11 W.	Mrs. Jones		1927	6	650	.....	510 650	40 40	 40–60	.....	Graham Ferry
28a.	NW. 1/4, SE. 1/4, Sec. 29, T. 6 S., R. 11 W., at school	Lyman School	C. R. Switzer	1936	3	525	.....	.....	.....	70	.....	Graham Ferry
29.	NE. 1/4, NE. 1/4, Sec. 27, T. 6 S., R. 12 W.	Harrison County Farm		1937	3	72	72	42	32	.....	.....	Citronelle (?)
30.	NE. 1/4, SE. 1/4, Sec. 33, T. 6 S., R. 12 W.	John Cadle	Thomas Evans	1938	3	190	.....	.....	12	23	Sand	Graham Ferry
31.	NW. 1/4, SE. 1/4, Sec. 32, T. 6 S., R. 11 W.	J. W. Havens	Fred Sutter	1923	3	526	.....	.....	.....	77	Sand	Graham Ferry
31a.	NE. 1/4, SE. 1/4, Sec. 31, T. 6 S., R. 11 W., at Nugent	Mrs. Lloyd	C. R. Switzer	1925	3	570	.....	.....	.....	80	.....	Graham Ferry
32.	SE. 1/4, NW. 1/4, Sec. 32, T. 6 S., R. 10 W.	Parker & Johnson		1906	4½	700	.....	.....	.....	.....	Sand	Graham Ferry (?)
33.	SW. 1/4, NE. 1/4, Sec. 32, T. 6 S., R. 10 W.	James Lee	Thomas Evans	1937	2	512	.....	.....	.....	.....	.....	Graham Ferry
34.	NE. 1/4, SE. 1/4, SE. 1/4, Sec. 1, T. 7 S., R. 10 W.	W. S. Tatum	C. R. Switzer	1937	3	764	.....	.....	.....	.....	.....	Graham Ferry (?)
34a.	SE. 1/4, SE. 1/4, Sec. 33, T. 6 S., R. 9 W., 3 mi. N. Back Bay Bridge	George Seidule	C. R. Switzer	1925	3	604	.....	.....	.....	90	.....	Graham Ferry (?)

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
18.	.....	.....	16.8	4–14 1939	91	0.7	Top of well cross	.....	.....	78	Domestic	
19.	15	140	12.8	4–14 1939	48	2.0	Top of well tee	.....	.....	.....	Fish pond	Log
20.	16	100	11.5	4–14 1939	51	1.5	Top of well elbow	95	.....	.....	Fish pond	
21.	.....	.....	–10	4–14 1939	.....	.....	Land surface at well head	.....	50	.....	Domestic	Drawdown 10 feet, pumping 50 g. p. m.
21a.	16½	200	.....	.....	.....	.....	.....	.....	.....	.....	.....	Log
22.	.....	.....	.....	.....	96	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
23.	.....	.....	–13	11–18 1924	92.51	.....	Land surface at well head	.....	.....	.....	Industrial	Windmill powered suction pump
23a.	.....	.....	.....	.....	96	.....	.....	.....	.....	.....	Abandoned	Mississippi Agr. Exper. Sta. Bull. 89, p. 76, 1905. Log
24.	.....	.....	–18±	4–13 1939	119	.....	Land surface at well head	.....	.....	.....	Domestic	
25.	.....	.....	5.4	4–13 1939	.....	1.0	Top of well tee	.....	.....	77¼	Domestic	
26.	.....	.....	18.9	4–12 1939	45	1.1	Top of well tee	.....	.....	80	Domestic	
27.	.....	.....	21.1	4–12 1939	29	2.3	Top of well cross	94	.....	71½	Domestic	
28.	– 4	.....	–13±	4–12 1939	77.61	.....	Land surface at well head	.....	.....	.....	Domestic	Head declined 10 feet after installation of fish hatchery wells
28a.	.....	.....	.....	.....	98	.....	.....	.....	.....	.....	.....	.....
29.	.....	.....	–30	4–10 1939	.....	.....	Land surface at well head	.....	.....	.....	Domestic	Dug 6 ft. sq. to 40 ft., 3-inch perforated pipe to 72 ft., pump set in 3-inch pipe
30.	– 32	.....	.....	.....	.....	.....	Land surface at well head	.....	.....	70	Domestic	
31.	17	50	.....	Oct. 1923	54.79	.....	Land surface at well head	.....	.....	.....	Domestic	Log
31a.	– 17	.....	.....	.....	65±	.....	.....	.....	.....	.....	.....	.....
32.	35	250	20.5	4–13 1939	45	2.6	Top of well tee	.....	.....	70¾	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 196, 1928, Well 36
33.	.....	.....	26.1	4–12 1939	40	1.8	Top of well tee	.....	.....	74¾	Domestic	
34.	50	160	47.3	2–15 1943	.....	0.5	Top of well cross	.....	.....	.....	Domestic	
34a.	22	20	.....	.....	25±	.....	.....	.....	.....	.....	.....	.....

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
35.	SW. 1/4, NE. 1/4, SE. 1/4, Sec. 1, T. 7 S., R. 10 W.	J. H. Overstreet	C. R. Switzer	1936	2	757	.....	.....	.....	.....	.....	Graham Ferry (?)
36.	NW. 1/4, SE. 1/4, SE. 1/4, Sec. 1, T. 7 S., R. 10 W.	Gustave Graul		1909	1½	180	.....	.....	.....	.....	Sand and gravel	Citronelle
37.	NW. 1/4, SE. 1/4, SE. 1/4, Sec. 1, T. 7 S., R. 10 W.	Gustave Graul		.....	3	550±	.....	.....	.....	.....	.....	Graham Ferry
38.	NW. 1/4, NW. 1/4, Sec. 4, T. 7 S., R. 10 W.	Woolmarket Consol. Sch	C. R. Switzer	1927	3	535	535	.....	.....	100	Sand	Graham Ferry
38a.	SE. 1/4, SE. 1/4, Sec. 33, T. 6 S., R. 10 W., 1 mi. E. of Woolmkt H S	Logan Scarborough	C. R. Switzer	1927	2	535	.....	.....	.....	100	Sand	Graham Ferry
39.	SE. 1/4, SW. 1/4, Sec. 5, T. 7 S., R. 10 W.	Mrs. J. O'Neal		.....	3±	.....	.....	.....	.....	.....	.....	.....
40.	NE. 1/4, NW. 1/4, Sec. 8, T. 7 S., R. 11 W.	William Johanneson	C. R. Switzer	1925	3	576	576	.....	.....	70	Sand	Graham Ferry
40a.	NW. 1/4, NE. 1/4, Sec. 8, T. 7 S., R. 11 W.	Mr. Hays	C. R. Switzer	1935	3	576	.....	.....	.....	70	.....	Graham Ferry
40b.	NE. 1/4, NE. 1/4, Sec. 7, T. 7 S., R. 11 W.	A. W. Roy	C. R. Switzer	1937	3	550	.....	.....	.....	60	.....	Graham Ferry
41.	SW. 1/4, NE. 1/4, Sec. 7, T. 7 S., R. 10 W.	Mr. Gould	John A. Sutter (?)	1924	3	522	.....	.....	20	90	Sand and gravel	Graham Ferry
41a.	NE. 1/4, SW. 1/4, Sec. 7, T. 7 S., R. 10 W., at Lorraine	P. L. Bennett	C. R. Switzer	1930 (?)	2	525	.....	.....	.....	.....	.....	Graham Ferry
42.	SW. 1/4, NW. 1/4, Sec. 8, T. 7 S., R. 10 W.	Ben Richards	John A. Sutter	1911	3	521	.....	.....	20	60	Sand and gravel	Graham Ferry
43.	SW. 1/4, NE. 1/4, NW. 1/4, Sec. 11, T. 7 S., R. 10 W.	M. W. Brush	Thomas Evans	.....	2	700±	.....	.....	.....	.....	.....	Graham Ferry (?)
44.	Center of NE. 1/4, Sec. 12, T. 7 S., R. 10 W.	Hengen No. 1	G. A. Hesse	1939	.....	2700	.....	.....	.....	.....	.....	.....
45.	SE. 1/4, SW. 1/4, Sec. 7, T. 7 S., R. 9 W.	Jacob Kornman	C. R. Switzer	1928	3	828	.....	.....	.....	.....	.....	Pascagoula
46.	NW. 1/4, SE. 1/4, Sec. 16, T. 7 S., R. 9 W.	H. H. Grantham	C. R. Switzer	1928	3	911	.....	.....	.....	.....	.....	Pascagoula
47.	Center NW. 1/4, SW. 1/4, Sec. 18, T. 7 S., R. 9 W.	John G. Hengen	C. R. Switzer	1926	3	829	.....	.....	.....	68	Sand	Pascagoula
48.	NW. 1/4, NW. 1/4, Sec. 16, T. 7 S., R. 11 W.	C. M. Smith	Thomas Evans	1938	3	789	749	709	40	.....	.....	Graham Ferry
48a.	SE. 1/4, SW. 1/4, Sec. 9, T. 7 S., R. 11 W., at Landon	Wilson's Nursery	C. R. Switzer	1925	4	788	.....	.....	.....	.....	.....	Graham Ferry
48b.	NE. 1/4, SW. 1/4, Sec. 9, T. 7 S., R. 11 W., E. side of U. S. Highway 49, at Landon	H. Grace	C. R. Switzer	1924	4	760	.....	.....	.....	.....	.....	Graham Ferry
48c.	SE. 1/4, SW. 1/4, Sec. 15, T. 7 S., R. 11 W.	Mr. Coleson	C. R. Switzer	1925	3	823	.....	.....	.....	.....	.....	Graham Ferry
48d.	NW. 1/4, Sec. 15, T. 7 S., R. 11 W.	Loren Dedeaux	C. R. Switzer	1927	3	587	.....	.....	.....	.....	.....	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
35.	40	60	52.3	2–15 1943	.....	3.0	Top of well tee	.....	.....	.....	Domestic	
36.	10	3	3.6	4–13 1939	6	1.7	Top of well tee	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 196, 1928, Well 35
37.	.....	.....	20±	10–6 1940	.....	.....	Land surface at well head	.....	.....	.....	Domestic	
38.	17.5	50	2.5	4–14 1939	50	.....	Land surface at well head	.....	.....	.....	Domestic	
38a.	17	15	.....	.....	52	.....	.....	.....	.....	.....	.....	
39.	.....	.....	8.5	4–17 1939	19	2.0	Top of well elbow	5	.....	73½	Abandoned	Found flowing openly
40.	28	75	14.6	4–11 1939	46.50	3.1	Top of plug in well cross	.....	.....	.....	Domestic	
40a.	8	10	.....	.....	5±	.....	.....	.....	.....	.....	.....	
40b.	40	125	.....	.....	21	.....	.....	.....	.....	.....	.....	
41.	40	175	23.2	4–12 1939	24	1.3	Top of well cross	.....	.....	.....	Domestic	
41a.	30	60	.....	.....	26±	.....	.....	.....	.....	.....	.....	
42.	80	150	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	Log
43.	.....	.....	24.5	2–15 1943	.....	2.1	Top of well tee	.....	.....	.....	Domestic and stock	
44.	.....	.....	.....	.....	69	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
45.	25	75	9.9	4–12 1939	50.69	2.4	Top of well cross	48	.....	80	Domestic and irrigation	
46.	40	125	28.0	2–16 1943	.....	3.0	Top of well tee	.....	.....	.....	Domestic and stock	
47.	40	150	3.3	2–16 1943	.....	.....	Land surface	.....	.....	.....	Domestic	
48.	23	.....	22.5	4–11 1939	31.01	2.0	Land surface	.....	.....	78	Domestic and stock	
48a.	18	125	.....	.....	40±	.....	.....	.....	.....	.....	.....	
48b.	30	150	.....	.....	48	.....	.....	.....	.....	.....	.....	
48c.	35	115	.....	.....	24	.....	.....	.....	.....	.....	.....	
48d.	25	75	.....	.....	48	.....	.....	.....	.....	.....	.....	

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
48e.	SE. 1/4, NW. 1/4, Sec. 16, T. 7 S., R. 11 W., at Landon	I. C. Railroad	C. R. Switzer	1928	4	104	.....	.....	.....	.....	.....	Citronelle
48f.	NW. 1/4, SE. 1/4, Sec. 16, T. 7 S., R. 11 W., on Hwy 49 at Landon	Barnes & Davis Plaining Mill	C. R. Switzer	1936	4	824	.....	.....	.....	100	.....	Graham Ferry
48g.	NE. 1/4, NW. 1/4, Sec. 18, T. 7 S., R. 11 W., 1.5 mi. W. of Landon	F. Dedeaux	C. R. Switzer	1940	3	1215	.....	.....	.....	30	.....	Pascagoula
49.	NW. 1/4, NE. 1/4, Sec. 22, T. 7 S., R. 11 W.	Creosote Plant	C. R. Switzer	1928	4	753	.....	.....	40	.....	.....	Graham Ferry
49a.	NE. 1/4, Sec. 22, T. 7 S., R. 11 W., near Creosote Plant	W. K. Reed	C. R. Switzer	1927	2½	.....	.....	.....	.....	60	.....	.....
49b.	NW. 1/4, NW. 1/4, Sec. 19, T. 7 S., R. 10 W.	Fred Brown	C. R. Switzer	1925	3	834	.....	.....	.....	155	.....	Graham Ferry
50.	NE. 1/4, NE. 1/4, NW. 1/4, Sec. 22, T. 7 S., R. 10 W.	Mr. Cogan	.....	.....	2½	775±	.....	.....	.....	.....	.....	Graham Ferry
51.	SW. 1/4, SW. 1/4, Sec. 23, T. 7 S., R. 10 W.	Hendricks, Nichols, & Postelthwaite	C. R. Switzer	1926	2	612	.....	.....	.....	78	Sand	Graham Ferry
52.	SW. 1/4, SW. 1/4, Sec. 23, T. 7 S., R. 10 W.	Postelthwaite	Postel-thwaite	1927	1	412	.....	.....	20	30	.....	Graham Ferry
53.	NW. 1/4, NW. 1/4, Sec. 24, T. 7 S., R. 10 W.	Mrs. L. B. French	.....	.....	3	600±	.....	.....	.....	.....	.....	Graham Ferry
54.	SW. 1/4, SE. 1/4, Sec. 19, T. 7 S., R. 9 W.	City of Biloxi Naval Res. Park	G. A. Hesse	1924±	4	800±	.....	.....	.....	.....	.....	Graham Ferry
55.	SW. 1/4, NE. 1/4, Sec. 21, T. 7 S., R. 9 W.	P. H. Mulholland	George Elder	.....	.....	850	.....	.....	.....	.....	.....	Graham Ferry
56.	SW. 1/4, NE. 1/4, Sec. 21, T. 7 S., R. 9 W., at Biloxi	First National Bank	.....	1916	3	850±	.....	.....	.....	.....	.....	Pascagoula (?)
57.	NW. 1/4, NE. 1/4, Sec. 21, T. 7 S., R. 9 W.	D'Iberville Consol. Sch.	C. R. Switzer	1925	3	868	.....	.....	.....	.....	.....	Pascagoula
58.	Biloxi, foot of N. Bowen St.	Anticich Canning Co. Ice Plt.	Fred Sutter	1934	6	935	935	.....	40	110	.....	Pascagoula
59.	Biloxi, foot of N. Bowen St.	New Ice Co.	C. R. Switzer	1928	5	913	.....	.....	.....	100	Sand	Pascagoula
60.	Biloxi, foot of N. Braun St.	L. Braun Canning Co.	C. R. Switzer	1935	4	905	.....	.....	.....	80	Sand	Pascagoula
61.	Biloxi, foot of N. Davis St.	Southern Shellfish Co.	Fred Sutter	1935	4	865	.....	.....	.....	60	Sand and gravel	Pascagoula
61a.	Biloxi, on Lameuse St.	Barq Bottling Plant	C. R. Switzer	1940	4	900	.....	.....	.....	50	.....	Pascagoula
62.	Biloxi, foot of N. Renoir St.	Biloxi Canning Co.	C. R. Switzer	1935	4	898	.....	.....	.....	80	.....	Pascagoula
63.	Biloxi, NE. cor. of intersection of DeSoto Ave. & Tuxedo St.	Keesler Field 6	Layne Central Co.	1942	.....	650±	.....	.....	.....	.....	.....	Graham Ferry
64.	NE. 1/4, SW. 1/4, Sec. 29, T. 7 S., R. 9 W.	Keesler Field 1	Layne Central Co.	Nov. 1941	10 & 18	624	624	521	40	35	Sand	Graham Ferry
65.	NE. 1/4, SW. 1/4, Sec. 29, T. 7 S., R. 9 W.	Keesler Field 4	Layne Central Co.	Dec. 1941	10 & 18	636	636	591	40	60	Sand and fine sand	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
48e.	.....	.....	.....	.....	30	.....	.....	.....	.....	.....	.....	
48f.	35	190	.....	.....	24	.....	.....	.....	.....	.....	.....	
48g.	30	30	.....	.....	43±	.....	.....	.....	.....	.....	.....	
49.	35	125	35.9	4–11 1939	12.53	1.6	Top of well cross	.....	.....	79	Industrial	
49a.	8	10	.....	.....	5±	.....	.....	.....	.....	.....	.....	
49b.	40	125	.....	.....	21	.....	.....	.....	.....	.....	.....	
50.	.....	.....	28.8	2–16 1943	.....	1.5	Top of well tee	50	.....	.....	Domestic	
51.	25	40	20.9	3–23 1939	27.19	2.1	Top of well cross	.....	.....	.....	Domestic	
52.	.....	.....	.....	.....	24.61	.....	.....	.....	.....	.....	Domestic	
53.	.....	.....	17.0	4–13 1939	9	2.3	Top of well cross	.....	.....	74¾	Domestic and stock	Line may leak
54.	.....	.....	22.9	3–23 1939	23	2.5	Top of well elbow	.....	.....	78½	Domestic	
55.	.....	.....	4.0	3–23 1939	8.12	3.0	Top of well tee	.....	.....	81½	Abandoned	
56.	.....	.....	36.7	3–22 1939	5.52	2.7	Top of well cross	.....	.....	.....	Public supply	Supplies small village
57.	40	150	16+	3–22 1939	14.11	.....	Land surface at well head	44	.....	81½	Domestic and school	Found flowing openly. Overflow pipe 16 feet above surface
58.	41.5	500	.....	.....	5.10	.....	.....	.....	.....	82½	Industrial	
59.	35	250	20.4	3–22 1939	7.04	1.5	Top of well tee	.....	.....	81	Abandoned	
60.	35	200	.....	.....	.....	.....	.....	.....	.....	.....	Industrial	
61.	.....	200	34.5	Nov. 1935	.....	.....	Well collar	.....	.....	.....	Industrial	Log
61a.	22	110	.....	.....	25±	.....	.....	.....	.....	.....	.....	
62.	35	200	.....	.....	.....	.....	.....	.....	.....	.....	Industrial	
63.	.....	.....	.....	.....	15.79	1.5±	Top of air line	.....	.....	.....	Army supply	
64.	.....	.....	.....	.....	20.35	.....	Top of air line	.....	500	77¼	Army supply	Found flowing. Log
65.	.....	.....	−7.94	5–26 1942	18.59	.....	Top of well tee	.....	605	.....	Army supply	Found flowing. Log

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
66.	SE. 1/4, NW. 1/4, Sec. 29, T. 7 S., R. 9 W.	Keesler Field 3	Layne Central Co.	Sept. 1941	10 & 18	646	646	535	40	79	Good fine sand	Graham Ferry
67.	NW. 1/4, SW. 1/4, Sec. 29, T. 7 S., R. 9 W.	Keesler Field 2	Layne Central Co.	Oct. 1941	10 & 18	640	640	534	40	80	Sand and fine sand	Graham Ferry
68.	SE. 1/4, NE. 1/4, Sec. 30, T. 7 S., R. 9 W.	Keesler Field 5	Layne Central Co.	Jan. 1942	10 & 18	623	623	515	40	57	Sand	Graham Ferry
69.	SW. 1/4, SW. 1/4, Sec. 25, T. 7 S., R. 10 W.	C. F. Burkhardt	C. R. Switzer	1925	3	720	.....	.....	.....	100	Sand	Graham Ferry
70.	SW. 1/4, NW. 1/4, Sec. 28, T. 7 S., R. 10 W.	Mr. Roberts	Thomas Evans	1938	3	680	.....	.....	40	.....	.....	Graham Ferry
71.	SW. 1/4, SW. 1/4, Sec. 28, T. 7 S., R. 10 W.	C. R. Switzer	G. A. Hesse	.....	5	690	.....	.....	40	.....	.....	Graham Ferry
71a.	SE. 1/4, SW. 1/4, Sec. 28, T. 7 S., R. 10 W.	Mr. Adams	C. R. Switzer	1928	3	696	.....	.....	.....	100	.....	Graham Ferry
71b.	SE. 1/4, SW. 1/4, Sec. 28, T. 7 S., R. 10 W., E. of Fernwood	Terry Scarborough	C. R. Switzer	1940	2	665	.....	.....	.....	120	.....	Graham Ferry
72.	SW. 1/4, NE. 1/4, Sec. 29, T. 7 S., R. 10 W.	Joe Milner	C. R. Switzer	1925	3	680	.....	.....	40	.....	Sand	Graham Ferry
72a.	NW. 1/4, SE. 1/4, Sec. 29, T. 7 S., R. 10 W., at Fernwood	John Martin	C. R. Switzer	1940	2	668	.....	.....	.....	120	.....	Graham Ferry
72b.	NW. 1/4, NW. 1/4, Sec. 29, T. 7 S., R. 10 W., 1 mi. NE. of Handsboro Bridge, N. side of Bayou Bernard	Syd Emthrids	C. R. Switzer	1926	2	506	.....	.....	.....	47	.....	Graham Ferry
72c.	SW. 1/4, NE. 1/4, Sec. 30, T. 7 S., R. 10 W., 0.3 mi. NE. Handsboro Bridge	Kremer Place	C. R. Switzer	1931	4	877	.....	.....	.....	.....	.....	Graham Ferry (?)
73.	NW. 1/4, SE. 1/4, Sec. 30, T. 7 S., R. 10 W.	Mr. McCarley	C. R. Switzer	1925	3	860	.....	.....	.....	100	.....	Graham Ferry
74.	SW. 1/4, SE. 1/4, Sec. 30, T. 7 S., R. 10 W.	George Pugh	H. Paffhausen	1919	2½	825±	.....	.....	.....	.....	.....	Graham Ferry
74a.	NE. 1/4, NW. 1/4, Sec. 31, T. 7 S., R. 10 W., S. side Pass Christian Road, at Handsboro	Handsboro Waterworks	C. R. Switzer	1937	4	865	.....	.....	.....	.....	.....	Graham Ferry
75.	SE. 1/4, SE. 1/4, Sec. 25, T. 7 S., R. 11 W.	J. J. Harry	H. Paffhausen	1912±	2½	650	.....	.....	.....	.....	.....	Graham Ferry
76.	SE. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 11 W.	Mr. Legette	Sutter Well Works	1907±	3	840	.....	.....	.....	.....	.....	Graham Ferry
76a.	NE. 1/4, NW. 1/4, Sec. 30, T. 7 N., R. 10 W., on ridge 0.5 mi. N. of Handsboro Bridge	L. H. Buchanan	C. R. Switzer	1924	3	771	.....	.....	.....	.....	.....	Graham Ferry
76b.	SW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 11 W.	Mrs. Kahler	C. R. Switzer	1924	2	631	.....	.....	.....	.....	.....	Graham Ferry
76c.	SW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 11 W.	Robert Dambrino	C. R. Switzer	1927	3	650	.....	.....	.....	80	.....	Graham Ferry
77.	SW. 1/4, SE. 1/4, Sec. 25, T. 7 S., R. 11 W.	J. C. Reno	C. R. Switzer	1936	3	667	.....	.....	.....	70	Sand	Graham Ferry
78.	NW. 1/4, SE. 1/4, Sec. 25, T. 7 S., R. 11 W.	Griffin & Kahler	C. R. Switzer	1927±	3	900±	.....	.....	.....	.....	.....	.....

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
66.	.....	250	.....	.....	21.60	.....	Top of air line	.....	615	77¼	Army supply	Found flowing. Log
67.	.....	.....	.....	.....	21.59	.....	Top of air line	.....	650	.....	Army supply	Found flowing. Log
68.	.....	100	.....	.....	23.1	.....	Top of air line	.....	500	.....	Army supply	Found flowing. Log
69.	35	125	16.7	3-23 1939	29.42	2.0	Top of well cross	.....	.....	78	Domestic	Supplies 5 families
70.	28+	.....	25.2	3-18 1939	23.94	2	Top of well cross	.....	.....	78	Domestic and stock	
71.	34	.....	16.1	3-23 1939	32.27	2	Top of well cross	.....	.....	.....	Domestic	Supplies 14 families
71a.	35	100	.....	.....	25±	.....	.....	.....	.....	.....	.....	
71b.	22	33⅓	.....	.....	25±	.....	.....	.....	.....	.....	.....	
72.	35	125	22.4	3-18 1939	26.46	2	Top of well tee	.....	.....	.....	Domestic and stock	
72a.	24	35	.....	.....	20±	.....	.....	.....	.....	.....	.....	
72b.	40	60	.....	.....	8±	.....	.....	.....	.....	.....	.....	
72c.	35	200	.....	.....	8±	.....	.....	.....	.....	.....	.....	
73.	70	.....	22.9	3-18 1939	28.35	2.3	Top of plug in well cross	.....	.....	79¾	Domestic and irrigation	
74.	43	.....	.....	.....	29.54	1	.....	.....	.....	76	Domestic	
74a.	25	175	.....	.....	31.8	.....	.....	.....	.....	.....	.....	
75.	.....	.....	.....	.....	23.53	.....	.....	.....	.....	.....	Domestic	
76.	.....	.....	.....	.....	8.83	.....	.....	.....	.....	.....	Domestic	Old saw mill well
76a.	40	125	.....	.....	20	.....	.....	.....	.....	.....	.....	
76b.	.....	50	.....	.....	14	.....	.....	.....	.....	.....	.....	
76c.	35	150	.....	.....	14	.....	.....	.....	.....	.....	.....	
77.	40	125	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
78.	9	.....	17.0	7-8 1942	22.34	1.5	Top of well cross	.....	.....	.....	Domestic	

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Geologic formations
79.	SE. 1/4, SW. 1/4, Sec. 25, T. 7 S., R. 11 W.	L. James		1923	3	652	.....	.....	60	.....	.....	Graham Ferry
80.	NE. 1/4, NW. 1/4, Sec. 25, T. 7 S., R. 11 W.	Hulbert & Blunt	C. R. Switzer	1928	2	640	.....	.....	40	.....	.....	Graham Ferry
81.	SE. 1/4, NE. 1/4, Sec. 26, T. 7 S., R. 11 W., at Gulfport Field	U. S. Army 4A	Carloss Well Supply Co.	1942	12	658	581	.....	85¾	90	Gray sand	Graham Ferry
82.	Gulfport Field, 125 ft. N. of 9th St. between Canal D. Sta., 24 ft. E. of Bldg. 16-7-1	U. S. Army 4	Carloss Well Supply Co.	.....	2	661	658	.....	.....	98	Coarse sand	Graham Ferry
83.	SW. 1/4, NE. 1/4, Sec. 26, T. 7 S., R. 11 W., at Gulfport Field	U. S. Army 3	Carloss Well Supply Co.	1942	12	668	548	.....	85½	103	Sand and green sand	Graham Ferry
84.	NW. 1/4, NE. 1/4, Sec. 26, T. 7 S., R. 11 W., at Gulfport Field	U. S. Army 2	Carloss Well Supply Co.	1942	12	645	548	.....	85½	100	Sand	Graham Ferry
85.	SW. 1/4, SE. 1/4, Sec. 23, T. 7 S., R. 11 W., at Gulfport Field	U. S. Army 1	Carloss Well Supply Co.	1942	12	658	574	.....	63⅓	104	Sand	Graham Ferry
86.	NW. 1/4, NW. 1/4, Sec. 27, T. 7 S., R. 13 W.	Harrison & Dedeaux	John A. Sutter	1930	3	529	.....	.....	.....	55	Sand	Graham Ferry
87.	SW. 1/4, NW. 1/4, Sec. 29, T. 7 S., R. 13 W.	C. A. Moran	John A. Sutter	1925	3	617	617	.....	.....	.....	.....	Graham Ferry
88.	NE. 1/4, NE. 1/4, Sec. 5, T. 8 S., R. 12 W.	Robert S. Newman	Fred Sutter	1938	4	548	548	.....	30	72	Sand and gravel	Graham Ferry
88a.	SE. 1/4, NE. 1/4, Sec. 32, T. 7 S., R. 12 W., W. bank of Wolf River	J. J. Vooman	C. R. Switzer	1929	2½	571	.....	.....	.....	.....	.....	Graham Ferry
89.	NE. 1/4, NE. 1/4, Sec. 33, T. 7 S., R. 12 W.	C. Southwick	John A. Sutter	1912	3	550	550	.....	.....	20	Sand	Graham Ferry
90.	SW. 1/4, SW. 1/4, Sec. 33, T. 7 S., R. 11 W.	McSmith Garment Co.	John A. Sutter	1934	4	600	600	.....	.....	.....	.....	Graham Ferry
90a.	SW. 1/4, SE. 1/4, Sec. 32, T. 7 S., R. 11 W.	Joe Schloegel	C. R. Switzer	1925	3	751	.....	.....	.....	.....	.....	Graham Ferry
91.	SE. 1/4, NW. 1/4, Sec. 33, T. 7 S., R. 11 W.	Gulfport Fertilizer Co.	John A. Sutter	1897±	4	900	900	.....	.....	30	.....	Graham Ferry
92.	SE. 1/4, NW. 1/4, Sec. 33, T. 7 S., R. 11 W.	Gulfport Fertilizer Co.	H. Paffhausen	1926	2	930	.....	.....	.....	.....	.....	Graham Ferry
93.	NW. 1/4, NW. 1/4, Sec. 23, T. 7 S., R. 11 W.	J. J. Harry		1912±	2½	550±	.....	.....	.....	.....	.....	Graham Ferry
93a.	SW. 1/4, SE. 1/4, Sec. 28, T. 7 S., R. 11 W., on Hwy 49 N. of Gulfp'rt	Hi-Hat Club	C. R. Switzer	1940	4	810	.....	.....	47	.....	.....	Graham Ferry
94.	30th St. and 22nd Ave., at Gulfport	City of Gulfport		.....	4	800±	800±	.....	.....	.....	.....	Graham Ferry
94a.	SE. 1/4, SE. 1/4, Sec. 34, T. 7 S., R. 11 W., on Pass Christian Rd., 1 house W. of Dedeaux	Mr. Lambricht	C. R. Switzer	1926±	3	866	.....	.....	.....	80	.....	Graham Ferry
95.	SW. 1/4, NW. 1/4, Sec. 34, T. 7 S., R. 11 W.	I. C. R. R.		.....	3	.....	.....	.....	.....	.....	.....	.....
96.	NW. 1/4, NE. 1/4, Sec. 36, T. 7 S., R. 11 W.	E. D. Singleton	C. R. Switzer	1925	2	681	681	641	40	80	.....	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
79.	42	.....	.....	.....	10.44	1.4	Top of well cross	130	.....	.....	Domestic	
80.	35	50	20.2	3-23 1939	.....	1.8	Top of well cross	.....	.....	76	Domestic	
81.	.....	.....	-5.4	6-23 1943	18.04	.....	Land surface at well head	.....	600	.....	Army supply	92 feet gravel wall finish. Minerals studied in laboratory. Log
82.	.....	.....	-15.4	7-26 1943	14.40	2.2	Top of well cross	.....	.....	.....	Abandoned	Log
83.	.....	.....	.....	.....	14.4	.....	Land surface at well head	.....	600	77	Army supply	91 feet gravel wall finish. Minerals studied, in laboratory. Log
84.	.....	.....	.....	.....	17.13	.....	Land surface at well head	.....	500	77	Army supply	91 feet gravel wall finish. Log
85.	.....	.....	-14.2	6-25 1942	22.14	.....	Land surface at well head	120	.....	77	Army supply	83 feet gravel wall finish. Log
86.	.....	.....	2.0	3-27 1939	71±	1.2	Top of well tee	50	.....	.....	Domestic and stock	Log
87.	12	50	4.0	3-27 1939	69±	.....	Land surface at well head	11.4	.....	76½	Domestic and stock	
88.	30	175	33.6	3-27 1939	34	1.5	Top of well cross	.....	.....	75	Domestic	Log
88a.	25	75	.....	.....	15±	.....	.....	.....	.....	.....	.....	.....
89.	45	160	21.8	3-24 1939	37±	2.0	Top of well tee	42	.....	74½	Domestic and irrigation	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 22
90.	27.6	.....	.....	.....	22.73	.....	Land surface at well head	.....	.....	.....	Industrial	
90a.	40	150	.....	.....	32	.....	.....	.....	.....	.....	.....	.....
91.	.....	.....	9±	3-16 1939	33.73	.....	Land surface at well head	13	.....	79	Industrial	Now flows at ground level
92.	.....	.....	5±	3-16 1939	32.99	.....	Land surface at well head	7	.....	78	Industrial	Flowed 9 gallons per minute in 1927-1929
93.	.....	.....	16.9	3-15 1939	29.89	0.9	Top of well cross	34.3	.....	78	Domestic and stock	
93a.	22	80	.....	.....	18±	.....	.....	.....	.....	.....	.....	.....
94.	.....	.....	.....	.....	20.78	.....	.....	.....	.....	.....	Public supply	
94a.	25	100	.....	.....	25±	.....	.....	.....	.....	.....	.....	.....
95.	.....	.....	23.6	3-15 1939	22.99	3	Top of upper well valve	60±	.....	78¼	Stock	
96.	25	30	-6.4	1-29 1943	33.73	4.25	Top of well tee	.....	8½	.....	Domestic	

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
97.	NE. 1/4, NE. 1/4, Sec. 36, T. 7 S., R. 11 W.	Martin Estate	Sutter Well Works	1911	3	690	.....	.....	20	20	Sand	Graham Ferry
98.	NW. 1/4, NW. 1/4, Sec. 31, T. 7 S., R. 10 W.	Lyons & Fishburn		1908±	2½	836	836	.....	.....	46	Sand	Graham Ferry
99.	NW. 1/4, NW. 1/4, Sec. 31, T. 7 S., R. 10 W.	A. R. Martinolich	H. Paffhausen	1929	5	700	.....	.....	.....	.....	.....	Graham Ferry
100.	NW. 1/4, NW. 1/4, Sec. 31, T. 7 S., R. 10 W.	A. R. Martinolich		1935	4	900	900	.....	.....	.....	.....	Graham Ferry
100a.	NW. 1/4, NW. 1/4, Sec. 31, T. 7 S., R. 10 W., SE. cor. of junction of Pass Christian & Teagarden Rds.	Mississippi City Waterworks	C. R. Switzer	1931	3	840	.....	.....	.....	78	.....	Graham Ferry
101.	SW. 1/4, SW. 1/4, Sec. 32, T. 7 S., R. 10 W.	Gulf Coast Military Academy	Fred Sutter	1937	4	900	.....	.....	40	75	Sand and gravel	Graham Ferry
102.	SW. 1/4, SW. 1/4, Sec. 32, T. 7 S., R. 10 W.	Gulf Coast Military Academy		.....	3	970±	.....	.....	.....	.....	.....	Graham Ferry
103.	SW. 1/4, SW. 1/4, Sec. 32, T. 7 S., R. 10 W.	George P. Money		1912	3	850	850	.....	30	.....	Sand	Graham Ferry
104.	NW. 1/4, SW. 1/4, Sec. 33, T. 7 S., R. 10 W., on Beach Rd., at Debuys St.	A. H. Hayward	C. R. Switzer	1924	3	711	.....	.....	.....	.....	.....	Graham Ferry
105.	SE. 1/4, NW. 1/4, Sec. 32, T. 7 S., R. 10 W.	Great Sou Hotel Golf Club	Sutter Well Works	1915	4	800	800	.....	.....	.....	.....	Graham Ferry
106.	NE. 1/4, SW. 1/4, Sec. 32, T. 7 S., R. 10 W.	Great Sou Hotel Golf Club	Sutter Well Works (?)	1910	3	800	.....	.....	20	20	Sand	Graham Ferry
107.	NW. 1/4, SE. 1/4, Sec. 32, T. 7 S., R. 10 W.	Great Sou Hotel Golf Club		1909	4	800	.....	.....	.....	.....	.....	Graham Ferry
108.	NE. 1/4, SE. 1/4, Sec. 32, T. 7 S., R. 10 W.	E. B. Henritzy	C. R. Switzer	1936	4	671	.....	.....	50	60	.....	Graham Ferry
109.	NE. 1/4, SE. 1/4, Sec. 33, T. 7 S., R. 10 W.	Edgewater Gulf Hotel		1926	6	1450±	.....	.....	.....	.....	.....	Pascagoula
109a.	NE. 1/4, SE. 1/4, Sec. 33, T. 7 S., R. 10 W., at Edgewater Subdvn near hotel	Mr. Voight	C. R. Switzer	1927	4	691	.....	.....	.....	.....	.....	Graham Ferry
109b.	NW. 1/4, SW. 1/4, Sec. 34, T. 7 S., R. 10 W., 0.4 mi. E. Edgewater Gulf Hotel	Briarfield Subdivision	C. R. Switzer	1925	4	870	.....	.....	.....	.....	.....	Graham Ferry
109c.	NE. 1/4, SW. 1/4, Sec. 33, T. 7 S., R. 10 W.	Fernwood	C. R. Switzer	1929±	2	682	.....	.....	.....	.....	.....	Graham Ferry
109d.	NE. 1/4, SW. 1/4, Sec. 33, T. 7 S., R. 10 W., near Edgewtr Glf Hotel	Milton Kearney	C. R. Switzer	1941	3	845	.....	.....	.....	87	.....	Graham Ferry
110.	SE. 1/4, NE. 1/4, Sec. 34, T. 7 S., R. 10 W.	U. S. Veterans Home		1904	.....	800	.....	.....	.....	.....	.....	Graham Ferry
111.	SW. 1/4, NW. 1/4, Sec. 35, T. 7 S., R. 10 W.	Wipper & Martin	C. R. Switzer	1939	6	734	674	.....	60	50	Sand and gravel	Graham Ferry
112.	SW. 1/4, NW. 1/4, Sec. 35, T. 7 S., R. 10 W.	Wipper & Martin		.....	2½	.....	.....	.....	.....	.....	.....	.....

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
97.	60	160	19.8	3–17 1939	28.14	2.0±	Top of well cross	.....	.....	.....	Domestic and irrigation	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 20
98.	55	150	11.6±	3–17 1939	32.27	0.9	Top of well elbow	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 19
99.	.....	.....	.....	.....	29.95	.....	.....	.....	.....	77¼	Industrial	
100.	.....	.....	.....	.....	28.49	.....	.....	.....	.....	.....	Industrial	
100a.	55	125	.....	.....	25±	.....	.....	.....	.....	.....	.....	
101.	30	.....	27.5	3–18 1939	21.84	3.3	Top of well tee	220	500	80½	Public supply	Log
102.	.....	.....	29.9	3–18 1939	19.69	1.6	.....	.....	.....	80¼	Public supply	
103.	60	175	.....	.....	22.82	.....	.....	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 25
104.	40	125	.....	.....	20	.....	.....	.....	.....	.....	.....	
105.	.....	.....	.....	.....	26.41	.....	.....	.....	.....	.....	Domestic and irrigation	
106.	50	175	28.3	3–18 1939	20	2	Top of well tee	.....	.....	79½	Domestic and irrigation	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 26
107.	.....	.....	25.9	3–18 1939	23.11	2.5	Top of well cross	.....	.....	.....	Public supply	
108.	35	175	21.1	7–2 1942	9.57	2.1	Top of well tee	.....	.....	.....	Domestic	
109.	.....	.....	21.9	3–17 1939	22.20	2.5	Top of well tee	.....	.....	81	Hotel and swimming pool	
109a.	30	150	.....	.....	20±	.....	.....	.....	.....	.....	.....	
109b.	40	200	.....	.....	25±	.....	.....	.....	.....	.....	.....	
109c.	30	60	.....	.....	15±	.....	.....	.....	.....	.....	.....	
109d.	32	80	.....	.....	20±	.....	.....	.....	.....	.....	.....	
110.	.....	.....	.....	.....	18.54	.....	.....	27±	.....	.....	Domestic and industrial	
111.	35	325	29.0	3–22 1939	18.87	3.3	Top of well elbow	.....	.....	78½	Domestic	
112.	.....	.....	.....	.....	21.38	.....	.....	.....	.....	78¾	Domestic	

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
112a.	Sec. 35, T. 7 S., R. 10 W., at Beauvoir, W. Beach Drive	Mr. Pattison	C. R. Switzer	1925	3	864	.....	.....	.....	120	.....	Graham Ferry
113.	2,114 W. Beach Blvd., at Biloxi	E. C. Thompson		.....	3	.....	.....	.....	.....	.....	.....	.....
114.	On 1st Ave. & ½ block N. of Beach Ave., at Biloxi	G. H. Woollett	Mr. Feitel	1897+	.....	750	.....	.....	.....	.....	.....	Graham Ferry
115.	NW. cor. 1st Ave. and Father Ryan St., at Biloxi	City of Biloxi	C. M. Journey Co.	1942	10	1226	.....	.....	.....	124	Sand	Pascagoula
116.	White and Beach Aves., at Biloxi	White House Hotel	Sutter Well Works	1923	4	995	.....	.....	40	80	Sand	Pascagoula
117.	White and Beach Aves., at Biloxi	White House Hotel		1912	3	600	.....	.....	.....	.....	.....	Graham Ferry
118.	On NE. cor. junction of W. Beach Dr. & White St., at NW. cor main hotel bldg., at Biloxi	White House Hotel	Sutter Well Works	1923	4	825	825	785	40	.....	.....	Pascagoula
119.	Cemetary St., between Gill Ave., and Porter Ave., at Biloxi	City of Biloxi	Layne Central Co.	1927	10	1280	1182	1114	68	68	Sand	Pascagoula
120.	1,332 W. Howard Ave., between W. End Fire Sta. and R. R. tracks, at Biloxi	City of Biloxi		1903	8	928	920	.....	.....	.....	Sand	Pascagoula
121.	Main St. Pumping Sta., E. well, at Biloxi	City of Biloxi	G. A. Hesse	1927	10	1219	1184±	.....	83	116	Sand and gravel	Pascagoula
122.	NE. cor. junction of Lameuse & McElroy Sts., at Biloxi	City of Biloxi		1899±	6	900	.....	.....	.....	.....	.....	Pascagoula
123.	Main St. Pumping Sta., W. well, at Biloxi	City of Biloxi	Layne Bowler Co.	1889	10	960	.....	.....	12	.....	Sand	Pascagoula
124.	NE. cor. junction of Washington & Lameuse Sts., at Biloxi	City of Biloxi		1893±	4	.....	.....	.....	.....	.....	.....	.....
125.	In front of City Hall, at Biloxi	City of Biloxi		1893±	4	400±	.....	.....	.....	.....	.....	Graham Ferry
126.	SW. cor. of intersection of Jackson & Delauney Sts., at Biloxi	Capt. Desport and others		1908	4	960	940	.....	.....	.....	Sand	Pascagoula
127.	Delauney St., ½ blk N. of Howard Ave., at Biloxi	Biloxi Ice Co.	John A. Sutter	1906	6	920	920	.....	.....	.....	Sand	Pascagoula
128.	Railroad St., ½ blk W. of Delauney St., at Biloxi	Biloxi Ice Co.		.....	3½	727	.....	.....	.....	.....	Sand	Graham Ferry
128a.	433 Delauney St., at Biloxi	Biloxi Ice Co.	C. R. Switzer	1925	18	295	.....	.....	.....	.....	.....	Graham Ferry
129.	Croesus St., ½ blk S. of Railroad St., at Biloxi	So. Mississippi Ice. Co.	Mr. Elder	1926	4½	1225	1225	1185	40	50	.....	Pascagoula
130.	Intersection of Delauney & Railroad Sts., SE. cor. at Biloxi	So. Mississippi Ice. Co.		1890	2	450	.....	open	.....	.....	.....	Graham Ferry
131.	301 E. Beach St., at Biloxi	City of Biloxi		1911	2½	440	440	400	40	40	.....	Graham Ferry
131a.	NW. 1/4, NW. 1/4, Sec. 34, T. 7 S., R. 9 W.	.....		1905	.....	918	.....	.....	.....	428	Sand and gravel	Pascagoula

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
112a.	38	150	.....	.....	25±	.....	.....	.....	.....	.....	.....	
113.	.....	.....	3.95	5-26 1942	22.50	2.1	Top of well cross	.....	.....	.....	Domestic	
114.	.....	.....	20.1	3-21 1939	22.81	1.0	Top of well cross	.....	.....	77¾	Public supply	Supplies 6 families
115.	.....	.....	.....	.....	31.76	.....	.....	.....	.....	84½	Public supply	Minerals studied in laboratory. Log
116.	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
117.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
118.	34.6	100	18.2	3-23 1939	25.61	2.3	Top of well cross	.....	.....	77¼	Domestic	
119.	.....	.....	41.2	3-21 1939	22.75	4.0	Top of well elbow	1250	.....	85¾	Public supply	Log
120.	44	900	23.0	3-21 1939	21.28	0.0	Top of well cross	686	.....	77¼	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 1
121.	.....	.....	44.6	3-21 1939	20.57	1.6	Top of well cross	575	.....	85¾	Public supply	Log
122.	.....	.....	.....	.....	20.22	.....	.....	.....	.....	.....	.....	
123.	.....	300	.....	.....	19.63	.....	.....	.....	.....	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 2
124.	.....	.....	.....	.....	23.72	.....	.....	.....	.....	.....	Public supply	
125.	.....	.....	.....	.....	23.46	.....	.....	.....	.....	.....	Public supply	
126.	40	360	.....	.....	20.13	.....	.....	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 3
127.	60	700	.....	.....	25.43	.....	.....	.....	.....	.....	Industrial	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 6
128.	.....	100	.....	.....	.....	.....	.....	.....	.....	.....	Industrial	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 7
128a.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
129.	58	.....	.....	.....	25.50	.....	.....	.....	300	.....	Industrial	
130.	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	Domestic	
131.	30	30	18.2	3-21 1939	14.78	2.2	Top of well cross	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 5
131a.	.....	1000	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	Louisiana Geol. Survey Bull. 1 (Rept. for 1905), p. 25, 1905

TABLE 15—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
131b.	On E. Beach St., 2 blks W. of Oak St., at Biloxi	Mr. Tullis	C. R. Switzer	1937	3	997	.....	.....	.....	40 20 40	.....	Graham Ferry & Pascagoula
132.	E. Beach St., ½ blk E. of Oak St., at Biloxi	Mavar Fish & Oyster Co.	Sutter Well Works	1934	4	1000	1000	960	40	.....	.....	Pascagoula
132a.	On beach at S. end of Oak St., at Biloxi	Anticich Packing Plant	C. R. Switzer	1934	4	1019	.....	.....	.....	80	.....	Pascagoula
133.	E. Beach St., ½ blk E. of Oak St., at Biloxi	Mavar Fish & Oyster Co.	Fred Sutter	1937	6	896	896	856	40	.....	.....	Pascagoula
134.	E. Beach St., ½ blk E. of Oak St., at Biloxi	Mavar Fish & Oyster Co.	Fred Sutter	1937	4	740	740	700	40	.....	.....	Pascagoula
135.	Foot of S. Pine St., at Biloxi	DeJean Packing Co.	Fred Sutter	1936	4	1004	.....	.....	.....	74	Sand and gravel	Pascagoula
136.	In the middle of Deer Island, 0.4 mi. E. of residences	R. K. Mulnix	C. B. Costanera	1915	4	846	846	806	40	80	Sand	Pascagoula
137.	NW. 1/4, NE. 1/4, Sec. 6, T. 8 S., R. 10 W.	Mrs. J. A. Leathers	.....	1900	6	.....	.....	.....	.....	.....	.....	.....
138.	NE. 1/4, NW. 1/4, Sec. 6, T. 8 S., R. 10 W.	Mrs. Henry Plaggio	Fred Sutter	.....	3	800	.....	.....	.....	.....	.....	Graham Ferry
139.	NE. 1/4, NW. 1/4, Sec. 6, T. 8 S., R. 10 W.	W. Hendrickson	C. R. Switzer	1936	4	922	922	902	20	45	Sand	Graham Ferry
140.	NE. 1/4, NW. 1/4, Sec. 6, T. 8 S., R. 10 W.	C. W. King	C. R. Switzer	1942	3	932	.....	.....	.....	.....	.....	Graham Ferry
141.	NE. 1/4, NW. 1/4, Sec. 6, T. 8 S., R. 10 W.	Anchor Tourist Court	Sutter Well Works	.....	4	833	.....	.....	.....	82	Sand and gravel	Graham Ferry
141a.	NE. 1/4, NW. 1/4, Sec. 6, T. 8 S., R. 10 W., at Lakeland	.....	C. R. Switzer	1924	4	824	.....	.....	.....	.....	.....	Graham Ferry
142.	NE. 1/4, NE. 1/4, Sec. 1, T. 8 S., R. 11 W.	Mississippi City Water Co.	.....	1911	4	915	915	885	30	30	Sand	Graham Ferry
142a.	SW.1/4, NE. 1/4, Sec. 1, T. 8 S., R. 11 W., on Beach Rd., at Mississippi City	Gulf Shore Manor	C. R. Switzer	1926	3	636	.....	.....	.....	80	.....	Graham Ferry
143.	NE. 1/4, NE. 1/4, Sec. 1, T. 8 S., R. 11 W., at Mississippi City	L. & N. R. R.	.....	1900	2½	537	537	.....	.....	.....	Sand	Graham Ferry
144.	SW. 1/4, NW. 1/4, Sec. 1, T. 8 S., R. 11 W.	U. S. Veterans Hospital	John A. Sutter	1917	4	898	898	818	80	98	Sand and gravel	Graham Ferry
144a.	NW. 1/4, Sec. 1, T. 8 S., R. 11 W., behind Veterans Hospital	.....	C. R. Switzer	1925	3	885	.....	.....	.....	80	.....	Graham Ferry
145.	NW. 1/4, SE. 1/4, Sec. 2, T. 8 S., R. 11 W.	T. S. Clower and others	John A. Sutter	1903	4	800	.....	.....	.....	.....	.....	Graham Ferry
146.	300 ft. E. & 40 ft. N., of intersect. of E. St. & Jones St., at Gulfport	Roy L. Stewart and others	Sutter Well Works (?)	1900±	5	1500±	.....	.....	.....	.....	.....	Pascagoula (?)
147.	NE. cor. of intersect. of 18th St. & 24th Ave., at Gulfport	City of Gulfport	Layne Central Co.	1937	10	965	965	882	71	92	Blue sand	Graham Ferry
148.	SE. cor. of intersect. of 18th St. & 24th Ave., at Gulfport	City of Gulfport	John A. Sutter	1915	4	960	960	900	60	100	Sand	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
131b.	20	85	.....	.....	15	.....	.....	.....	.....	.....	.....	
132.	48.5	350	36.9	3-23 1939	5.44	1±	Land surface	.....	.....	83	Industrial	
132a.	35	200	.....	.....	5±	.....	.....	.....	.....	.....	.....	
133.	.....	250	.....	.....	6.32	.....	.....	.....	.....	.....	Industrial	
134.	15	250	.....	.....	6.11	.....	.....	.....	.....	.....	Industrial	
135.	.....	250	40	July 1936	.....	.....	Well collar	.....	.....	.....	Industrial	Hydrogen sulphide odor Log
136.	55	362	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 1. Log
137.	.....	.....	32.7	3-17 1939	13.48	1.7	Top of well tee	.....	.....	.....	Domestic	
138.	.....	.....	.....	.....	13.81	0.5	Top of well cross	.....	.....	.....	Domestic	Natural head supplies water to second story of house
139.	40	200	32.1	3-17 1939	21.35	0.0	Land surface at well head	.....	.....	.....	Domestic	Supplies 40 cottages and 2 homes
140.	30	.....	24	2-19 1943	15.65	2±	Top of well tee	.....	.....	.....	Domestic	
141.	34	180	.....	.....	20±	.....	.....	.....	.....	.....	Domestic	Log
141a.	40	250	.....	.....	.....	20±	.....	.....	.....	.....	.....	
142.	60	475	.....	.....	19.10	.....	.....	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 24
142a.	30	100	.....	.....	.....	20±	.....	.....	.....	.....	.....	
143.	30	300	15–	.....	23.73	.....	.....	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 27
144.	57.8	250	25.3	3-17 1939	20.58	3.0	Top of plate covering tee	.....	.....	.....	Public supply	Log
144a.	40	125	.....	.....	.....	25±	.....	.....	.....	.....	.....	
145.	.....	.....	25.3	3-17 1939	16.21	0.8	Top of well elbow	.....	.....	77	Domestic	Supplies 8 to 10 families
146.	.....	.....	20.8	3-17 1939	25.98	3.3	Top of well tee	.....	.....	77	Domestic	Flow was 360 g. p. m. in 1917
147.	.....	.....	6.8	3-14 1939	27.54	1.9	Top of check-valve flange	.....	1500	80	Public supply	Gravel wall finish. 50 horse power electric motor; drives turbine pump. Log
148.	20	150	5.6	3-14 1939	25.25	0.3	Top of well tee	.....	.....	81	Public supply	

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
149.	SE. cor. of intersect. of 18th St. & 24th Ave., at Gulfport	City of Gulfport	Layne Central Co.	1927	10	1242	1242	.....	.....	.....	.....	Pascagoula (?)
150.	SE. cor. of intersect. of 19th St. & 24th Ave., at Gulfport	City of Gulfport	Brown Deep Well Co.	1910	8	1173	1173	1096	77	73	Sand	Pascagoula (?)
151.	W. side of 24th Ave., just N. of R. R. tracks, at Gulfport	City of Gulfport	G. A. Hesse	1921	10	1244	1244	.....	.....	79	Sand	Pascagoula (?)
152.	W. side of 24th Ave., just S. of R. R. tracks, at Gulfport	City of Gulfport		1904	6	862	862	.....	.....	62	Sand	Graham Ferry
153.	N. side of 19th St. between 30th Ave. & 31st Ave., just W. of alley, at Gulfport	City of Gulfport		1900±	.....	850±	.....	.....	.....	.....	.....	Graham Ferry
154.	At SW. cor. of Post Office, at Gulfport	U. S. Post Office Dept.	John A. Sutter	1911	3	1262	1262	1232	30	32	Sand and gravel	Graham Ferry
155.	E. side of 28th Ave., ½ blk S. of 13th St., at Gulfport	So. Mississippi Ice Co.	John A. Sutter	1903	4½	840	840	820	20	60	.....	Graham Ferry
156.	W. side of 33rd Ave., just S. of L. & N. R. R. tracks, at Gulfport	So. Mississippi Ice. Co.	C. R. Switzer	1925	4	771	771	731	40	80	Sand	Graham Ferry
157.	Midway between 30th and 31st Aves., 75 ft. N. of L. & N. R. R. tracks, at Gulfport	J. W. Milner		.....	4	.....	.....	.....	.....	.....	.....	Pascagoula
158.	150 ft. W. of Great Southern Hotel, at Gulfport	Great Southern Hotel	John A. Sutter	1913	4	1260	1260	.....	.....	60	Sand	Pascagoula
159.	175 ft. W., 50 ft. S., of Great Southern Hotel, at Gulfport	Great Southern Hotel	Fred Sutter	1941	4	904	.....	.....	30	.....	.....	Graham Ferry
159a.	Near L. & N. frt depot, SE. 1/4, SW. 1/4, Sec. 4, T. 8 S., R. 11 W., at Gulfport	Gulf Coast Laundry	C. R. Switzer	1925	3	838	.....	.....	.....	95	.....	Graham Ferry
159b.	NE. 1/4, NE. 1/4, Sec. 9, T. 8 S., R. 11 W., at Gulfport	Hotel Markham	C. R. Switzer	1929	6	1237	.....	.....	.....	65	.....	Pascagoula (?)
160.	SE. 1/4, NE. 1/4, Sec. 5, T. 8 S., R. 11 W.	U. S. Adv. Naval Base Depot 1	Layne Central Co.	1942	10	1196	1196	1126 1177	10 19	16 21	Fine sand and sand	Pascagoula (?)
161.	SE. 1/4, NE. 1/4, Sec. 6, T. 8 S., R. 11 W.	U. S. Adv. Naval Base Depot 2	Layne Central Co.	1942	10	854	854	824	30	38	Fine sand	Graham Ferry
162.	SW. 1/4, NW. 1/4, Sec. 6, T. 8 S., R. 11 W.	U. S. Adv. Naval Base Depot 3	Layne Central Co.	1942	10	761	761	701	60	88	Sand	Graham Ferry
163.	NE. 1/4, NE. 1/4, NE. 1/4, Sec. 5, T. 8 S., R. 12 W.	M. H. Goldstein	John A. Sutter	1921	3	569	569	.....	.....	64	Coarse sand	Graham Ferry
164.	NW. 1/4, NE. 1/4, Sec. 5, T. 8 S., R. 12 W.	Mr. Lewis	Sutter Well Works	.....	.....	.....	.....	.....	.....	.....	.....	.....
165.	NE. 1/4, NW. 1/4, Sec. 5, T. 8 S., R. 12 W.	G. E. Northrup		.....	6	.....	.....	.....	.....	.....	.....	.....
166.	NE. 1/4, SE. 1/4, Sec. 6, T. 8 S., R. 13 W.	Pine Hills Hotel	John A. Sutter	1926	6	684	684	644	40	116	Sand and gravel	Graham Ferry
166a.	NW. 1/4, NW. 1/4, Sec. 11, T. 8 S., R. 13 W., at DeLisle	J. J. Jackson	John A. Sutter	.....	4	560	.....	.....	.....	60	Sand and gravel	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
149.	.....	.....	.....	.....	29.03	.....	.....	.....	.....	.....	Public supply	40 horse power electric motor, drives turbine pump. Used only in summer
150.	65	400	.....	.....	12.53	.....	.....	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 9. Log
151.	.....	.....	.....	.....	25.41	.....	.....	.....	.....	.....	Public supply	Log
152.	60	450	.....	.....	27.04	.....	.....	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 10
153.	.....	.....	7.0	3–15 1939	29.08	2.0	Top of flange bolt	.....	.....	.....	Public supply	
154.	65	175	20.0	3–15 1939	21.32	1.7	Top of well cross	80	.....	85	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 17. Observation well
155.	.....	200	20.0	3–15 1939	23.33	0.0	Land surface at well head	.....	.....	.....	Industrial	
156.	30	140	22.0	3–15 1939	.....	0.0	Land surface at well head	.....	.....	.....	Industrial	
157.	.....	.....	19.2	3–15 1939	24.43	0.7	Top of well cross	100	.....	79	Abandoned	
158.	80.5	.....	26.2	3–15 1939	20.33	2.4	Top of well tee	80	.....	80	Domestic	
159.	.....	.....	21.0	7–11 1942	16.98	0.45	Top of plug in well cross	.....	.....	.....	Domestic	
159a.	25	75	.....	.....	30	.....	.....	.....	.....	.....	.....	
159b.	25	300	.....	.....	20±	.....	.....	.....	.....	.....	.....	
160.	.....	.....	15.0	9–3 1942	23.0	0.0	Land surface at well	.....	450	83½	Navy Supply	Log
161.	.....	.....	14.0	11–6 1942	31.71	0.0	Land surface at head	.....	450	79	Navy Supply	Minerals studied in laboratory Log
162.	.....	.....	17.0	12–2 1943	27.5	0.0	Land surface at well head	.....	450	78	Navy Supply	Log
163.	40	125	22.4	2-19 1943	.....	2.8	Top of highest elbow	.....	.....	.....	Domestic	Hydrogen sulphide odor Log
164.	.....	.....	42.0	2-19 1943	.....	1.6	Top of plug in cross	.....	.....	.....	Domestic and stock	
165.	.....	.....	.....	.....	.....	.....	.....	250	.....	.....	.....	Pump free. This well for many years furnished power to a grist mill
166.	70	700	58.96	3-27 1939	14	2.4	Top of well cross	.....	.....	.....	Domestic	Log
166a.	25	250	.....	.....	10	.....	.....	.....	.....	.....	.....	Log

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
166b.	SW. 1/4, NE. 1/4, Sec. 3, T. 8 S., R. 13 W., at DeLisle	David Nilot	John A. Sutter	1925	3	540	.....	.....	.....	70	Sand and gravel	Graham Ferry
166c.	NE. 1/4, SW. 1/4, Sec. 6, T. 8 S., R. 13 W.	Pine Hills Club House	John A. Sutter	1926	4	686	.....	.....	.....	118	Sand and gravel	Graham Ferry
167.	NW. 1/4, SW. 1/4, Sec. 8, T. 8 S., R. 12 W.	O. W. Townsend	Fred Sutter	1929	3	630	630	590	40	64	Sand	Graham Ferry
168.	SE. 1/4, NW. 1/4, Sec. 11, T. 8 S., R. 12 W.	Faraway Farm	Sutter Well Wks. dpnd. well.	.....	2½	610	.....	.....	40	.....	.....	Graham Ferry
168a.	NE. 1/4, SW. 1/4, Sec. 11, T. 8 S., R. 12 W., at junction of Daughterty St. & Pineville Rd.	W. J. Reid	C. R. Switzer	1928	3	653	.....	.....	.....	80	.....	Graham Ferry
169.	At head of W. pier, at Gulfport	City of Gulfport	Fred Sutter	1935	6	890	890	650 850	20 40	77 65	Sand	Graham Ferry
169a.	By King's Daughters Hosp. SW. 1/4, NW. 1/4, Sec. 9, T. 8 S., R. 11 W., at Gulfport	H. E. Hoke	C. R. Switzer	1941	4	893	.....	.....	.....	40	.....	Graham Ferry
170.	Just E. of entrance to W. pier, at Gulfport	Creole Foods Co.	Sutter Well Works	1935	.....	800	.....	.....	.....	.....	.....	Graham Ferry
170a.	SW. 1/4, NW. 1/4, Sec. 9, T. 8 S., R. 11 W., at SW. cor. of power plant, at Gulfport	Mississippi Power Company	Fred Sutter	1936	6	898	.....	.....	.....	148	Sand and gravel	Graham Ferry
171.	At end of main pier, at Gulfport	I. C. R. R.	.....	1898	4	800	800	700	30	30	Sand	Graham Ferry
172.	At end of main pier, at Gulfport	I. C. R. R.	.....	1916±	4	.....	.....	.....	.....	.....	.....	Graham Ferry
173.	In front of admn. bldg. at Gulf Park College	Gulf Park College	John A. Sutter	1921±	4	830	.....	.....	40	80	Sand and gravel	Graham Ferry
173a.	NW. 1/4, Sec. 18, T. 8 S., R. 11 W., on Beach Blvd., 5 hses. E. of English Ctgs. Tour Ct., at Gulfport	Dr. Butcher and Survally	John A. Sutter	.....	3	820	.....	.....	.....	114	Sand	Graham Ferry
173b.	SE. 1/4, SE. 1/4, Sec. 7, T. 8 S., R. 11 W., on beach at Rich Ave. in W. Gulfport	Formerly Lee M. Russell	C. R. Switzer	1925	4	765	.....	.....	.....	120	.....	Graham Ferry
173c.	SE. 1/4, SW. 1/4, Sec. 7, T. 8 S., R. 11 W., on 1st St. and Richards Ave., at Long Beach	Bickerstaff and Cook	C. R. Switzer	1926	3	836	.....	.....	.....	100	.....	Graham Ferry
174.	At NW. cor. of power house	Gulf Park College	C. R. Switzer	1935	4	832	832	792	40	80	Sand	Graham Ferry
175.	SE. cor. of intersect. of Jeff Davis Ave. & 2nd St., at Long Beach	City of Long Beach	John A. Sutter	1926	6	883	883	823	60	81	Sand and gravel	Graham Ferry
175a.	SW. 1/4, SW. 1/4, Sec. 13, T. 8 S., R. 12 W., 700 ft. N of beach, 1 blk W. of Main St., in Long Beach	J. Monroe	C. R. Switzer	1926	3	825	.....	.....	.....	100	.....	Graham Ferry
176.	250 ft. N. of L. & N. R. R. Sta., at Long Beach	Mississippi Water Co.	.....	1908±	4	840	840	.....	.....	40	sand	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
166b.	30	100	.....	.....	28±	.....	.....	.....	.....	.....	.....	Log
166c.	46	300	.....	.....	46	.....	.....	.....	.....	.....	.....	Log
167.	34	140	32.2	3-27 1939	29	1.4	Top of well cross	.....	.....	76½	Domestic and stock	Hydrogen sulphide odor Log
168.	46	.....	.....	.....	17.45	.....	Top of well head	.....	.....	.....	Domestic	Originally 450 feet deep, open bottom
168a.	.....	.....	.....	.....	26	.....	.....	.....	.....	.....	.....	.....
169.	39	482	35.7	3-14 1939	11.25	3.0	Top of union	.....	300	.....	Public supply	Log
169a.	16	120	.....	.....	16	.....	.....	.....	.....	.....	.....	.....
170.	.....	.....	39.7	3-16 1939	6.03	1.2	Land surface at well head	.....	.....	.....	Industrial	.....
170a.	18	300	.....	.....	16	.....	.....	.....	.....	.....	.....	Log
171.	60	200	35.9	3-16 1939	7.08	0.2	Top of well tee	.....	.....	78½	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 15 (?)
172.	.....	.....	36.0	3-16 1939	9.62	2.0	Top of well tee	200	.....	78½	.....	.....
173.	57.5	300	35.6	3-24 1939	16.93	1.8	Top of well cross	253	.....	79	Domestic	Log
173a.	70	250	.....	.....	20±	.....	.....	.....	.....	.....	.....	Log
173b.	35	200	.....	.....	16	.....	.....	.....	.....	.....	.....	.....
173c.	35	125	.....	.....	25	.....	.....	.....	.....	.....	.....	.....
174.	30	225	33.9	3-24 1939	18.62	1.0	Top of well cross	.....	.....	80	Swimming pool	.....
175.	57.5	700	27.8	3-24 1939	21	2.5	Top of well tee	350	.....	80	Public supply	Log
175a.	.....	125	.....	.....	20±	.....	.....	.....	.....	.....	.....	.....
176.	80	400	23.5	3-24 1939	25.89	2.0	Top of well tee	15	.....	79	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 195, 1928, Well 23

TABLE 15—(Continued)

No.	Location	Owner or Name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Geologic formations
176a.	SE. 1/4, SE. 1/4, Sec. 11, T. 8 S., R. 12 W., on Three Notch Rd., at city limits N. of Long Beach	Brank LaRose	C. R. Switzer	1926	3	832	.....	.....	.....	.....	.....	Graham Ferry
177.	3/4 mi. W. of Pineville Sch. at intersect. of Espey Ave. & Pineville Rd.	Mrs. Kight	Fred Sutter	1938	3	720	720	700	20	70	.....	Graham Ferry
177a.	Near No. 177	Mrs. Kight	Fred Sutter	1939	3	519	.....	.....	.....	51	Sand	Graham Ferry
178.	600 ft. S. of Pineville School Building	L. J. Dubuisson	Sutter Well Works	1924	3	600±	.....	.....	20	.....	.....	Graham Ferry
179.	NE. 1/4, NW. 1/4, Sec. 17, T. 8 S., R. 12 W.	Pineville Consol. School	Sutter Well Works	1928	3	591	591	.....	.....	61	Sand and gravel	Graham Ferry
180.	SW. 1/4, SW. 1/4, NW. 1/4, Sec. 18, T. 8 S., R. 13 W.	K. J. Colomb	Fred Sutter	1938	4	650	650	610	40	59	Gray sand	Graham Ferry
181.	SW. 1/4, NW. 1/4, NW. 1/4, Sec. 18, T. 8 S., R. 12 W.	Mr. Bingaman	.....	.....	3	660	.....	.....	.....	.....	.....	Graham Ferry
182.	NE. 1/4, NE. 1/4, NW. 1/4, Sec. 23, T. 8 S., R. 13 W.	Broome-Bright-Sutter	Fred Sutter	1936	2½	861	861	841	20	51	Sand and gravel	Graham Ferry
182a.	SW. 1/4, NW. 1/4, Sec. 23, T. 8 S., R. 13 W.	Louis Bright	Sutter Well Works	1925±	3	500±	.....	.....	.....	.....	.....	Graham Ferry
183.	NW. 1/4, SW. 1/4, Sec. 20, T. 8 S., R. 12 W.	W. D. Robinson	John A. Sutter	1910	3	677	.....	.....	.....	77	Sand and gravel	Graham Ferry
183a.	NW. 1/4, SE. 1/4, Sec. 19, T.8 S., R. 12 W., at junction of Courtney Ave. & N. St., at Pass Christian	A. H. Vorbusch	John A. Sutter	1926	3	840	.....	.....	.....	95	Sand and gravel	Graham Ferry
184.	Center of SE. 1/4 Sec. 21, T. 8 S., R. 12 W.	Pass Christian Tourist Court	Fred Sutter	1938	4	838	.....	.....	.....	78	Sand and gravel	Graham Ferry
185.	SE. 1/4, SW. 1/4, Sec. 21, T. 8 S., R. 12 W.	Camo Kittiwake	Fred Sutter	1937	4	714	714	674	40	90	Sand and gravel	Graham Ferry
185a.	SW. 1/4, SW. 1/4, Sec. 21, T. 8 S., R. 12 W., at cor. of Espey Ave. & E. Beach Blvd	M. J. Espey	John A. Sutter	1906	.....	753	.....	.....	.....	103	Sand	Graham Ferry
185b.	SW. 1/4, Sec. 21, T. 8. S., R. 12 W.	Formerly A. Mullinburger	John A. Sutter	1888	3	747	747	.....	.....	122±	Yellow Sand	Graham Ferry
186.	NE. 1/4, NW. 1/4, NW. 1/4, Sec. 29, T. 8 S., R. 12 W.	Grav Castle Hotel	John A. Sutter	1927–	4	708	.....	.....	.....	57	Sand and gravel	Graham Ferry
187	On beach at foot of Menge Ave., at Pass Christian	City of Pass Christian	Sutter Well Works	.....	6	843	843	.....	.....	53	Sand and gravel	Graham Ferry
188.	On beach at foot of Courtney St., at Pass Christian	City of Pass Christian	.....	1907	4	910	910	870	40	80	Sand	Graham Ferry
189.	Behind res. on Front St. between Courtney Ave. & Doolin Ave., at Pass Christian	Mrs. M. Y. Hill	.....	1916	3	665	665	645	20	55	Sand	Graham Ferry
190.	On beach at foot of Seal Ave., at Pass Christian	City of Pass Christian	.....	1902	3	700	700	.....	.....	.....	Sand	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
176a.	.....	125	.....	.....	20	.....	.....	.....	.....	.....	.....	
177.	30	125	28.8	3-27 1939	25	1.5	Top of well cross	.....	.....	.....	Domestic	
177a.	35	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	Log
178.	.....	.....	30.0	2-10 1943	.....	0.0	Land surface at well head	.....	.....	.....	.....	Hydrogen sulphide odor
179.	26	160	8.0	2-11 1943	.....	2.6	Top of gate valve	.....	.....	.....	Domestic	Log
180.	40	200	42.7	3-27 1939	26	1.2	Top of well cross	35	.....	77	Domestic	Log
181.	.....	.....	36.25	2-12 1943	.....	2.8	Top of upper valve	.....	.....	.....	Domestic	
182.	53	115	51.2	3-28 1939	7.30	2.2	Top of well cross	.....	.....	.....	Domestic	Log
182a.	.....	24	38.3	3-24 1939	7.57	1.5	Top of well cross	.....	.....	80¼	Domestic	Flows through partly opened valve
183.	.....	.....	37.0	3-25 1939	12.15	2.1	Top of well cross	.....	.....	.....	Domestic	Flow was 200 g. p. m. in 1936
183a.	74	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	Log
184.	18	250	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	Log
185.	40	250	41.1	3-27 1939	12.35	2.2	Top of well cross	.....	.....	.....	Domestic	
185a.	70	400	.....	.....	25	.....	.....	.....	.....	.....	.....	Log
185b.	69	50	.....	.....	20±	.....	.....	.....	.....	.....	.....	Log
186.	35	270	.....	.....	27.10	.....	.....	.....	50	.....	Domestic	Drilled to 1800 feet in 1927 Log
187.	.....	500	17	.....	20±	.....	Surface of land	.....	.....	.....	Public supply	Log
188.	57.5	300	33.6	3-25 1939	20.12	0.7	Top of well tee	.....	.....	79±	Public supply	
189.	45	150	.....	.....	24.25	.....	.....	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. -96, 1928, Well 30
190.	46	150	.....	.....	17.41	.....	.....	.....	.....	.....	.....	U. S. Geol. Survey Water-Supply Paper 576, p. 196, 1928, Well 28

TABLE 15—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
191.	On NE. cor. of intersect. of 2d St. & Clarke St., at Pass Christian	City of Pass Christian	Fred Sutter	1937	6	880	880	820	60	90		Graham Ferry
191a.	Cor. of Market and 2nd Sts., at Pass Christian	City of Pass Christian	John A. Sutter	1911	4	901	.....	.....	.....	71	Sand	Graham Ferry
192.	On NE. cor. intersect. of Henderson & N. Sts., at Pass Christian	.....	John A. Sutter	.....	2½	.....	.....	.....	.....	.....	.....	.....
193.	NW. 1/4, NE. 1/4, Sec. 27, T. 8 S., R. 13 W.	Realty-Jones	.....	.....	4	.....	.....	.....	.....	.....	.....	.....
194.	SW. 1/4, SW. 1/4, SW. 1/4, Sec. 27, T. 8 S., R. 13 W.	Johness Realty & Securities Co.	Sutter Well Works	1926	6	800	800	740	60	45	Sand and gravel	Graham Ferry
195.	NW. 1/4, SE. 1/4, NE. 1/4, Sec. 33, T. 8 S., R. 13 W.	Inn by the Sea	John A. Sutter	1927	4	985	985	945	40	87	Sand and gravel	Graham Ferry
196.	60 ft. N. & 39 ft. W. of cen. of intersect. U. S. Hwy 49 & 3rd St., at Henderson Point	Hibernia Bank of New Orleans	John A. Sutter	.....	6	800	800	740	60	.....	.....	Graham Ferry
197.	50 ft. W. of Tropical Inn on W. side U. S. Hwy 90 at S. end of R. R. overpass, at Henderson Pt.	J. D. Tschapik	Sutter Well Works	1932±	4	840	.....	.....	.....	.....	.....	Graham Ferry
198.	On Front St., between Elliott & Brown Aves., at Pass Christian	City of Pass Christian	Sutter Well Works	1933	4	1010	1010	970	40	.....	.....	Graham Ferry
199.	200 ft. N., 200 ft. E. of N. end of pier at mouth Little Bay, Cat Is.	U. S. Army	Layne Central Co.	1943	6	971	363	323	40	36 and 57	Sand	Graham Ferry
200.	At head of Spit Cove, on Cat Island	U. S. Army	Sutter Well Works	1929	3	530	530	.....	.....	60	Green sand and gravel	Graham Ferry
201.	125 ft. N. of N. shore in Miss. Sound, 1 mi. E of L H on Ship Is.	U. S. Coast Guard	John A. Sutter	1909	3	770	770	.....	.....	.....	Sand	Graham Ferry
202.	At Quarantine Station, on Ship Island	U. S. Coast Guard	John A. Sutter	1901	4	730	730	725	5	9	Sand	Graham Ferry
203.	On shoal midway between E. end of Ship Is. & W. end of Horn Is.	Hunt and Caillavet	C. R. Switzer	1928	3	867	867	.....	.....	.....	.....	Graham Ferry
204.	100 yds. SW. of L H, on W. end of Ship Is. at the fort	U. S. Coast Guard	John A. Sutter	.....	.....	750	.....	.....	.....	50	Sand	Graham Ferry

TABLE 15—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
191.	50	600	34.7	3-24 1939	13.32	1.0	Top of well cross	.....	.....	80¼	Public supply	
191a.	.....	.....	.....	.....	20	.....	.....	.....	.....	.....	Abandoned	Capped Log
192.	.....	.....	14.5	2-11 1943	10.98	1.8	Top of plug in well cross	24	.....	75	Abandoned	Flows openly
193.	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	Abandoned	Flows openly
194.	25	500	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	Log
195.	57.5	350	47.6	3-24 1939	4.48	1.3	Top of well tee	.....	.....	.....	Domestic	Log
196.	46	500	41.3	3-24 1939	9.48	2.5	Top of well elbow	.....	.....	79¾	Domestic	
197.	.....	.....	.....	.....	8.38	.....	.....	.....	.....	.....	Domestic	At 40 ft. below surface the drill entered a clay stratum 250 ft. thick
198.	64.4	350	31.5	3-25 1939	13	0.0	Land surface at well head	.....	.....	.....	Public supply	
199.	30	167	-16.0	2-15 1943	10±	3.0	Top of well collar	.....	50	.....	Army supply	Mineral and fossils studied in laboratory Spasmotic small flow when pump is shut down. Log
200.	8	75	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	Small flow, runs freely. Log
201.	20	150	20	8-31 1919	0.0	.....	Sea level	65	.....	78	Abandoned	Flowing openly. U. S. Geol. Survey Water-Supply Paper 576, p. 196, 1928, Well 34
202.	45	150	45	8-31 1919	10	0.0	Land surface at well head	.....	.....	.....	Public supply	Louisiana Geol. Survey pt. 6, p. 220, 1902. Log
203.	35	125	35	3-22 1928	6.0	.....	Top of well elbow	125	.....	.....	Abandoned	Well was drilled on an off-shore bar which subsequently moved 100 yds. N., left well standing in shallow water. Flows openly
204.	.....	.....	.....	.....	6	.....	.....	1	.....	.....	.....	Louisiana Geol. Survey pt. 6, p. 220, 1902 Barely flowing. Log

Table 16—Wells in Jackson County

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
1.	SW. 1/4, SE. 1/4, NE. 1/4, Sec. 27, T. 4 S., R. 8 W.	L. N. Dantzler Lbr. Co. No. 1	Gulf Rfg. Co. of La.	1933	.....	2646	.....	.....	.....	.....	.....	.....
1a.	NW. 1/4, NW. 1/4, Sec. 7, T. 4 S., R. 5 W.	P. G. Galloway	.....	1895	2	32	.....	.....	.....	3	Red sand	High terraces
										18	White sand	
1b.	SE. 1/4, SW. 1/4, Sec. 7, T. 4 S., R. 5 W., 3 mi. NW of Hurley	J. K. Monteith	.....	1915	1½	20	.....	.....	.....	6	Sand	High terraces
2.	NW. 1/4, SW. 1/4, Sec. 1, T. 5 S., R. 7 W.	Sou. Kraft Corp.	Fred Sutter	1937	2	459	439	439	20	200	Sand and gravel	Pascagoula
3.	NW. 1/4, SW. 1/4, NE. 1/4, Sec. 14, T. 5 S., R. 9 W.	C. C. C. F-12	Fred Sutter	.....	4	764	764	744	20	74	Coarse sand and gravel	Pascagoula
4.	Sec. 20, T. 5 S., R. 8 W., 760 ft. S., 660 ft. W., NE. cor.	L. N. Dantzler Lbr. Co. No. B-1	Humble Oil & Rfg. Co.	1943	10	11,378	2572	.....	.....	.....	.....	.....
5.	NW. 1/4, Sec. 32, T. 5 S., R. 8 W. 1,100 ft. E., 300 ft. S.	L. N. Dantzler Lbr. Co., and others, No. 4	Gulf Rfg. Co. of La.	1933	.....	2950	.....	.....	.....	.....	.....	.....
6.	SW. 1/4, SW. 1/4, NE. 1/4, Sec. 15, T. 6 S., R. 7 W.	Woodman No. 1	Atlas Oil Co.	1917	.....	2762	.....	.....	.....	.....	.....	.....
7.	NE. 1/4, NE. 1/4, Sec. 16, T. 6 S., R. 7 W., at Vancleave	Dees and Lockerd	John A. Sutter	1905	3	750	727	.....	.....	60	Sand	Pascagoula
8.	NE. 1/4, NE. 1/4, Sec. 16, T. 6 S., R. 7 W.	Dees and Lockerd	.....	.....	4	90	.....	.....	.....	.....	.....	Citronelle
9.	SW. 1/4, NW. 1/4, Sec. 17, T. 6 S., R. 8 W.	Hammil-Gay Still	.....	.....	3	.....	.....	.....	.....	.....	.....	.....
10.	SW. 1/4, SE. 1/4, Sec. 20, T. 6 S., R. 7 W.	Mr. Humphreys	J. A. Julian	1920	3	880	.....	.....	.....	.....	.....	Pascagoula
11.	NE. 1/4, Sec. 20, T. 6 S., R. 6 W.	Woodman No. 2	Atlas Oil Co.	1917	10 & 8	2654	1750	.....	.....	.....	.....	.....
11a.	SE. 1/4, SE. 1/4, Sec. 17, T. 6 S., R. 5 W., 2 mi. N. of Helena	Charles Alexander	.....	1910	48	20	.....	.....	.....	11.5	Fine White sand	Graham Ferry (?)
11b.	NW. 1/4, SE. 1/4, Sec. 9, T. 6 S., R. 5 W., on Miss. Export R. R.	Frank E Hurd	.....	1905	.....	20	.....	.....	.....	3	Quicksand	Graham Ferry
12.	NW. 1/4, NE. 1/4, Sec. 29, T. 6 S., R. 7 W.	A. L. Orr Estate	John A. Sutter	.....	2	800	800	.....	.....	.....	.....	Pascagoula
13.	NE. 1/4, SE. 1/4, Sec. 27, T. 6 S., R. 9 W.	George Crutherds	Atlas Well Drilling Co.	1927±	2	925	925	905	20	.....	.....	Pascagoula
14.	SE. 1/4, NW. 1/4, Sec. 34, T. 6 S., R. 9 W.	Edward Lamey	Thomas Evans	1939	2	1090	1090	1050	40	40	Very fine greensand	Pascagoula
15.	SE. 1/4, NW. 1/4, Sec. 35, T. 6 S., R. 9 W.	C. C. C. Camp McClellan	Fred Sutter	1934	3	965	.....	.....	30	60	Sand and gravel	Pascagoula
16.	SE. 1/4, NW. 1/4, Sec. 35, T. 6 S., R. 9 W.	C. C. C. Camp McClellan	Gray-Artesian Well Co.	.....	6	.....	.....	.....	.....	.....	.....	.....
17.	NW. 1/4, NW. 1/4, Sec. 4, T. 7 S., R. 5 W.	Waterman No. 1	The Georgia Co.	1921	.....	2434	.....	.....	.....	.....	.....	.....
18.	NW. 1/4, NW. 1/4, Sec. 4, T. 7 S., R. 5 W., 150 ft. W. of No. 1	Waterman No. 2	The Georgia Co.	1921	10 & 8	2400	1275	.....	.....	.....	.....	.....

TABLE 16—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
1.	.....	.....	.....	.....	147	.....	.....	.....	.....	.....	.....	Oil prospect well
1a.	−17	.....	.....	.....	116	.....	.....	.....	5	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 4 Log
1b.	−12	.....	.....	.....	112	.....	.....	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 7 Log
2.	.....	50	35.9	4-26 1939	42	2.3	Top of well cross	50	.....	.....	Domestic	
3.	.....	.....	−2.0	6-19 1939	99	0.0	Land surface at well head	.....	25	.....	Abandoned	
4.	.....	.....	.....	.....	108	.....	Derrick floor	.....	.....	.....	Abandoned	Partial log. Oil prospect well
5.	.....	.....	.....	.....	85	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
6.	.....	.....	.....	.....	20	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
7.	.....	125	48.0	4-26 1939	11	0.6	Top of well tee below valve	.....	.....	.....	Domestic and stock	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 27 Log
8.	.....	.....	.....	.....	.....	.....	.....	10	.....	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 28
9.	.....	.....	1.8	5-4 1939	52	4.9	Top of well cross	19	.....	76¼	Abandoned	
10.	.....	.....	50	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
11.	.....	.....	.....	.....	10	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
11a.	−8.5	.....	.....	.....	28	.....	.....	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 5 Log
11b.	.....	.....	.....	.....	30	.....	.....	.....	10	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 16 Hand pump Log
12.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
13.	40±	50	28.2	5-4 1939	52.00	1±	Top of well tee	.....	.....	.....	Domestic and stock	
14.	.....	.....	47.4	5-16 1939	43.38	1±	Top of well collar	75	.....	84½	Domestic and stock	Fossils identified. Log
15.	40	125	31.9	5-4 1939	43.67	2.6	Top of well tee	103	.....	84	Abandoned	80 feet of sand at 34 ft. Formerly observation well
16.	.....	.....	.....	.....	41.56	0.0	Top of well tee	.....	.....	76	Abandoned	Flows less than 1 g. p. m.
17.	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
18.	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	Abandoned	Oil prospect well

TABLE 16—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
19.	NW. 1/4, NW. 1/4, Sec. 1, T. 7 S., R. 6 W.	J. Bounds	John A. Sutter	1915±	4	450		430	20	60		Pascagoula
20.	NW. 1/4, NW. 1/4, Sec. 1, T. 7 S., R. 6 W.	J. Bounds	John A. Sutter	1912	4	450	450	430	20	60		Pascagoula
21.	SW. 1/4, NE. 1/4, Sec. 5, T. 7 S., R. 7 W.	Edward Lewis	J. A. Julian	1925	2	856						Pascagoula
22.	NW. 1/4, SW. 1/4, Sec. 3, T. 7 S., R. 9 W.	L. C. Bond	Lawrence Morris		3	790	790	770	20	20		Pascagoula
23.	SW. 1/4, SW. 1/4, Sec. 3, T. 7 S., R. 9 W.	E. Richards	Lawrence Morris	1928	2	575			20	22		Graham Ferry
24.	SE. 1/4, SW. 1/4, Sec. 11, T. 7 S., R. 9 W.	Dr. Henry	J. A. Julian		2	859						Pascagoula
25.	SE. 1/4, SE. 1/4, Sec. 11, T. 7 S., R. 9 W.	J. T. Morris and others	J. A. Julian	1926	2	849	849	829	20			Pascagoula
26.	NW. 1/4, NW. 1/4, Sec. 7, T. 7 S., R. 8 W.	Money Farm		1905±	4	1000						Pascagoula
27.	NW. 1/4, SW. 1/4, Sec. 8, T. 7 S., R. 7 W.	Seymour & Holmes	J. A. Julian	1925	2	798						Pascagoula
28.	SW. 1/4, NE. 1/4, SE. 1/4, Sec. 13, T. 7 S., R. 6 W.	Horace Nelson	J. A. Julian (?)	1928	2	750						Pascagoula
28a.	NE. 1/4, SE. 1/4, Sec. 14, T. 7 S., R. 6 W.	Escatawpa School	C. R. Switzer	1930	2½	1092						Pascagoula
29.	NW. 1/4, NW. 1/4, Sec. 9, T. 7 S., R. 6 W.	Ed. Comstock			3	800±						Pascagoula
30.	SW. 1/4, NW. 1/4, Sec. 18, T. 7 S., R. 8 W.	William Krakas			3	625±						Pascagoula
31.	SW. 1/4, NE. 1/4, Sec. 13, T. 7 S., R. 9 W.	Gulf Hills Development Co.	John A. Sutter	1926	3	846	846	806	40	70		Pascagoula
32.	SW. 1/4, SW. 1/4, Sec. 13, T. 7 S., R. 9 W.	Gulf Hills Development Co.	John A. Sutter	1926	4	843	758	798	40	85		Pascagoula
33.	SW. 1/4, SW. 1/4, Sec. 13, T. 7 S., R. 9 W.	Gulf Hills Development Co.	John A. Sutter		2	520						Graham Ferry
34.	NW. 1/4, NW. 1/4, Sec. 15, T. 7 S., R. 9 W.	Van Eaton Seymour	C. R. Switzer	1931	2	869				56	Sand	Pascagoula
35.	SW. 1/4, NW. 1/4, Sec. 15, T. 7 S., R. 9 W.	St. Martin School	C. R. Switzer	1925	3	883				50		Pascagoula
36.	NE. 1/4, NW. 1/4, Sec. 22, T. 7 S., R. 9 W.	Walter E. Zweck	C. R. Switzer	1941	3	930				140	Sand	Pascagoula
37.	NW. 1/4, SW. 1/4, Sec. 24, T. 7 S., R. 9 W.	A. L. Benjamin Estate			2½	500			20			Graham Ferry
38.	NE. 1/4, SW. 1/4, Sec. 24, T. 7 S., R. 9 W.	A. L. Benjamin Estate	John A. Sutter (?)	1914	3	640			20	50	Sand	Graham Ferry
39.	NW. 1/4, NE. 1/4, Sec. 24, T. 7 S., R. 9 W.	Gulf Hills Development Co.	John A. Sutter	1926	4	873			40	75	Sand	Pascagoula

TABLE 16—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
19.	.....	.....	.....	.....	.....	.....	.....	30±	.....	76	Stock	
20.	25	150	.....	.....	.....	.....	.....	30±	.....	76	Stock	
21.	.....	.....	20+	4-24 1939	.....	0.0	Land surface at well head	.....	.....	78	Domestic and stock	
22.	.....	.....	30+	.....	18.56	.....	.....	.....	.....	.....	Domestic and stock	Discharges through overflow pipe 30 feet high
23.	24	52	24+	4-13 1939	23.88	.....	Land surface at well	.....	.....	.....	Domestic and stock	
24.	.....	.....	28.8	4-27 1939	20.56	1±	Top of well cross	43	.....	82	Domestic and stock	
25.	40	60	24+	4-26 1939	22.76	.....	Land surface	.....	.....	.....	Domestic	
26.	.....	.....	.....	.....	.....	.....	.....	10±	.....	79	Domestic and stock	Leaks in pipe and casing
27.	.....	60	11.6	4-26 1939	24.0	2.8	Top of well cross	2	.....	.....	Domestic	
28.	.....	.....	16.6	5-11 1939	7.64	1.0	Top of well tee	2	.....	74	Domestic	Supplies 1 family
28a.	30	50	.....	.....	11	.....	.....	.....	.....	.....	.....	
29.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
30.	.....	.....	.....	.....	.....	.....	.....	70	.....	77	Abandoned	
31.	40	300	33.0	4-27 1939	9.18	2.8	Top of well cross	.....	.....	80	Golf course	
32.	45	350	.....	.....	10.47	.....	.....	.....	.....	.....	Abandoned	Overflows 14 feet
33.	.....	.....	19.5	8-26 1940	10.97	2.5	Top of well tee	19	.....	76	Abandoned	Hydrogen sulfide odor
34.	30	50	17.3	2-16 1943	.....	1.5	Top of well tee	.....	.....	.....	Domestic	
35.	40	125	40	10-9 1925	11.76	.....	Land surface at well head	.....	.....	.....	Domestic	Hydrogen sulfide odor
36.	35	40	28.0	2-16 1943	.....	−1.0	Top of well tee	.....	.....	.....	Domestic	
37.	.....	.....	20.9	4-25 1939	10.46	2.5	Top of well cross	.....	.....	76½	Domestic	
38.	50	175	33.1	4-25 1939	11.64	0.1	Top of well cross	.....	.....	77	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 20
39.	40	300	30.0	4-27 1939	17.60	2.4	Top of well tee	.....	.....	78	Public supply	

TABLE 16—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
40.	SE. 1/4, SW. 1/4, Sec. 19, T. 7 S., R. 8 W.	L. & N. Railroad	John A. Sutter	1912	6	535	.....	.....	40	40	Sand	Graham Ferry
41.	SE. 1/4, SW. 1/4, Sec. 19, T. 7 S., R. 8 W.	L. & N. Railroad	John A. Sutter	1912	4	1290	.....	.....	.....	90	Sand	Pascagoula
42.	NW. 1/4, SE. 1/4, Sec. 20, T. 7 S., R. 8 W.	Gus Nelson	John A. Sutter	1926	3	1224	1160	.....	40	65	Sand	Pascagoula
43.	NE. 1/4, SE. 1/4, Sec. 20, T. 7 S., R. 8 W.	C. Lindstrom	Fred Sutter	1932	3	940	.....	.....	40	100	Sand and gravel	Pascagoula
44.	NE. 1/4, SE. 1/4, Sec. 20, T. 7 S., R. 8 W.	Fred P. Moreton	C. R. Switzer	1941	3	1290	.....	.....	40	12 and 32	Sand	Pascagoula
45.	NW. 1/4, NW. 1/4, Sec. 24, T. 7 S., R. 8 W.	Alma Van Winkle	Fred Sutter	1935	2	658	.....	.....	20	.....	.....	Pascagoula
46.	SW. 1/4, NE. 1/4, Sec. 22, T. 7 S., R. 6 W.	Hibbler No. 1	Sea Coast Oil Co., Inc.	1921	12½	4000	.....	.....	.....	.....	.....	.....
47.	NW. 1/4, NE. 1/4, Sec. 10, T. 7 S., R. 6 W.	L. N. Dantzler Lbr. Co.	John A. Sutter	.....	3	790	.....	.....	.....	80	Sand	Pascagoula
48.	NE. 1/4, Sec. 10, T. 6 S., R. 6 W.	Central Artesian Well Co.	John A. Sutter	1908	4	806±	.....	.....	.....	.....	.....	Pascagoula
49.	NE. 1/4, NE. 1/4, Sec. 10, T. 7 S., R. 6 W.	Hodge Ship Co.	.....	1918	4	793	753	.....	.....	40	Sand	Pascagoula
50.	NW. 1/4, NE. 1/4, Sec. 24, T. 7 S., R. 6 W.	City of Moss Point, formerly Mr. Randall	John A. Sutter	1907	4	1100±	1065	1080	20	35	Sand	Pascagoula
51.	NW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	Layne Central Co. No. 1	1927	12 & 8	760	12" to 160 8" to 760	.....	.....	130 and 150	Fine gravel and coarse sand	Pascagoula
52.	NW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	Layne Central Co. No. 3	1929	18	100	.....	.....	.....	130 and 150	Fine gravel and coarse sand	Pascagoula
53.	NW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	Gray Artesian Well Co. No. 1	1926	6 & 4	1807	6" to 1165 4" to 1807	.....	.....	130 and 150	Fine gravel and coarse sand	Pascagoula
54.	NW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	Gray Artesian Well Co. No. 2	1927	12	155	.....	.....	.....	130 and 150	Fine gravel and coarse sand	Pascagoula
55.	NW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	Gray Artesian Well Co. No. 3	1927	6	1165	.....	.....	.....	130 and 150	Fine gravel and coarse sand	Pascagoula
56.	NW. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	Fred Sutter	1939	4	1100	1100	.....	.....	.....	.....	Pascagoula
57.	SE. 1/4, NW. 1/4, Sec. 19, T. 7 S., R. 5 W.	Mrs. Coward	John A. Sutter	1915	3	990	990	970	20	30	.....	Pascagoula
58.	SW. 1/4, SW. 1/4, Sec. 21, T. 7 S., R. 5 W.	Sou. Kraft Corporation	Layne Central Company	1936	12	997	251	.....	.....	39 and 50	Sand	Graham Ferry

TABLE 16—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
40.	30	250	5.0	4-21 1939	23.31	3±	Land surface at well head	85	.....	77	Railroad	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 22
41.	90	250	.....	.....	24.81	.....	.....	200	.....	88½	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 23 Salt scales in boilers. Log
42.	80.5	175	77.6	4-21 1939	24.27	1.3	Land surface at well head	.....	.....	87	Dom., stock, & irrigation	Salt. Some sulphur taste
43.	36	100	30.3	4-25 1939	21	2.3	Top of well cross	.....	.....	79½	Domestic & irrigation	Slight sulphur taste
44.	50	115	56.6	1-5 1943	.....	1.5	Top of slug in well tee	115	.....	86	Domestic & irrigation	Hydrogen sulphide odor
45.	13	11	8.7	4-24 1939	32	3±	Top of well tee	.....	675	76	Domestic and stock	Slight sulphur taste
46.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	Partial log Oil prospect well
47.	.....	135	16.4	5-10 1939	8	2.0	Top of cap in well cross	50	.....	.....	Industrial	U. S. Geol Survey Bull. 264, p. 87, 1905 Log
48.	28	150	.....	.....	.....	.....	Land surface at well head	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928 Well 15
49.	25	100	12.9	5-10 1939	29	1.0	Top of well elbow	.....	.....	71	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 10. Ship yard no longer exists
50.	25.3	200	19.9	5-10 1939	5.83	3.2	Top of well elbow	90	.....	84	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 8
51.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	51-55 combined in 1 log. Strainers in 2 strata
52.	–16	.....	.....	.....	19.36	.....	X on check valve	.....	300	.....	Public supply	Salty after 1 year. Periodically pumps 330 g. p. m.
53.	80.5	400	.....	.....	14.39	.....	Top of casing	.....	.....	104	Abandoned	Hot salt water
54.	.....	.....	.....	.....	.....	.....	.....	.....	200	.....	Abandoned	Salt water
55.	.....	75	17.4	5-10 1939	9.96	6.0	Top of well elbow	15	.....	.....	Industrial	Salt water used by lumber mill
56.	.....	.....	.....	.....	5.98	.....	.....	90	.....	.....	Public supply	Stand-by well, for emergency use only
57.	40	100	25.1	5-11 1939	7.87	1.4	Top of reducer	20	.....	82	Domestic and stock	18 feet of sand at 460 feet. Slight sulphur taste
58.	–30	.....	.....	.....	9.65	.....	Top of discharge pipe	.....	500	.....	Industrial	Log

TABLE 16—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
59.	SW. 1/4, SW. 1/4, Sec. 21, T. 7 S., R. 5 W.	Sou. Kraft Corporation	Layne Central Company	1936	12	1010	263	.....	.....	55	Coarse sand and gravel	Graham Ferry
60.	SW. 1/4, Sec. 28, T. 7 S., R. 5 W.	Margaret Hyslop No. 1	Great American Oil Co.	1925	.....	5243	.....	.....	.....	.....	.....	.....
61.	SW. 1/4, NE. 1/4, Sec. 29, T. 7 S., R. 5 W.	James D. Gautier	Fred Sutter	1939	4	1020	.....	.....	30	57	Sand and gravel	Pascagoula
62.	SE. cor. W. well, at R. R. and Welch Sts., at Moss Point	City of Moss Point	Fred Sutter	1939	4	843	843	803	40	53	Very fine greensand	Pascagoula
63.	SE. cor. E. well, at R. R. and Welch Sts., at Moss Point	City of Moss Point	Gray Artesian Well Co.	1940	8	145	145	110	35	35	Terrace gravel	Citronelle
64.	NW. 1/4, SE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	John A. Sutter	1910	4	840	.....	.....	20	80	Sand	Pascagoula
65.	NW. 1/4, SE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	John A. Sutter	1933	4	804	.....	.....	40	90	.....	Pascagoula
66.	NW. 1/4, SE. 1/4, Sec. 25, T. 7 S., R. 6 W.	City of Moss Point	John A. Sutter	1933	4	820	.....	.....	60	100	.....	Pascagoula
66a.	Sec. 25, T. 7 S., R. 6 W., at Moss Point	F. H. Lewis		1902	6	1550	814	.....	.....	44	Sand	Pascagoula
67.	SE. 1/4, SW. 1/4, Sec. 30, T. 7 S., R. 7 W.	Charles Richter	John A. Sutter	1937	3	516	516	476	40	40	Sand	Graham Ferry
68.	SW. 1/4, SW. 1/4, Sec. 26, T. 7 S., R. 8 W.	H. S. Perryman	Fred Sutter	1927	3	525	.....	495	30	65	Sand and gravel	Graham Ferry
68a.	Near 68, Sec. 26, T. 7 S., R. 8 W.	Earl A. Bond	Thomas Evans	1942	2	1141	1141	1119	22	.....	.....	Pascagoula
69.	SW. 1/4, NE. 1/4, Sec. 27, T. 7 S., R. 8 W.	Ernest Zettel	J. A. Julian	1923	3	550	.....	.....	.....	.....	.....	Graham Ferry
70.	SW. 1/4, SE. 1/4, Sec. 29, T. 7 S., R. 8 W.	Theodore A. Bechtel	John A. Sutter	1914	4	545	.....	.....	.....	.....	Sand	Graham Ferry
71.	30 ft. S., 40 ft. W. of cen. of intersect. of E. Porter & Dewey Aves., Ocean Springs	Town of Ocean Springs	John A. Sutter	1937	4	896	.....	.....	50	95	Sand	Pascagoula
71a.	NW. 1/4, Sec. 30, T. 7 S., R. 8 W.	Town of Ocean Springs	John L. Ford for John A. Sutter	.....	.....	950	.....	.....	.....	30	Sand	Pascagoula
72.	NE. 1/4, NE. 1/4, Sec. 25, T. 7 S., R. 9 W.	Town of Ocean Springs	John A. Sutter	1925	6	880	880	820	60	80	Sand	Pascagoula
73.	SW. 1/4, NW. 1/4, Sec. 33, T. 7 S., R. 8 W.	C. C. C. Camp SP-11	Fred Sutter	1938	4	536	536	516	20	64	Sand and gravel	Graham Ferry
74.	Center of Sec. 33, T. 7 S., R. 8 W.	Magnolia State Park No. 2	V. C. Mickle	1939	4	560	560	530	30	79	Sand	Graham Ferry
75.	SW. 1/4, NE. 1/4, Sec. 33, T. 7 S., R. 8 W.	Magnolia State Park No. 1	V. C. Mickle	1939	4	570	565	550	15	92	Coarse to fine sand	Graham Ferry
76.	SW. 1/4, NE. 1/4, Sec. 31, T. 7 S., R. 7 W.	H. P. Flateau		.....	3	480	.....	.....	.....	.....	.....	Graham Ferry
77.	NW. 1/4, SW. 1/4, Sec. 35, T. 7 S., R. 7 W.	Lyons Consol. School	J. A. Julian (?)	.....	3	700±	.....	.....	.....	.....	.....	Pascagoula

TABLE 16—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
59.	−30	.....	.....	.....	7.00	.....	Top of discharge pipe..	.....	500	.....	Industrial	Log
60.	.....	.....	.....	.....	10	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
61.	30	200	27.4	5-11 1939	19.24	2.4	Top of well cross	20	.....	83	Domestic	Supplies 2 families
62.	23	.....	7	June 1939	23.32	.....	Pump house floor	50	.....	.....	Public supply	Fossils identified. Log
63.	23	.....	.....	.....	.....	.....	Pump house floor	.....	350	.....	Public supply	
64.	34	150	13.8	5-10 1939	17.32	2.1	Top of well elbow	6	.....	79(?)	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 9
65.	23	180	12.9	5-10 1939	17.48	1.9	Top of well tee	90	.....	78	Public supply	
66.	25	150	13.5	5-10 1939	18.34	2.1	Top of well tee	7	.....	78	Abandoned	
66a.	.....	75	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	Mississippi Agr. Exper. Sta. Bull. 89, p. 79, 1905 Log
67.	10	40	6.9	5-1 1939	26	3.5±	Top of spigot	.....	.....	.....	Domestic and stock	Supplies 2 families
68.	20	125	11.1	5-1 1939	20.90	1.3	Top of well cross	6	.....	73¾	Domestic and stock	40 feet of sand at 427 feet
68a.	40	.....	44.0	6-17 1942	22.43	2.0	X on well tee	.....	.....	.....	.....	
69.	12	100	11.0	5-1 1939	20.89	3.5	Top of well cross	29.3	.....	74¾	Domestic	
70.	34	250	7.6	4-25 1939	21.80	3±	Top of well tee	125	.....	.....	Domestic and stock	U. S. Geol. Survey Water-Supply Paper 576, p. 234, 1928, Well 21
71.	23	125	21.3	4-22 1939	22.82	1.2	Top of well tee	125	.....	76	Public supply	
71a.	.....	.....	.....	.....	25	.....	.....	.....	.....	.....	Abandoned	Mississippi Agr. Exper. Sta. Bull. 89, p. 77, 1905 Log
72.	45	600	28.1	4-22 1939	15.53	1.5±	Top of well elbow	25	.....	77	Public supply	
73.	12	75	.....	.....	21.90	.....	.....	.....	62.5	.....	Camp supply	20 feet of sand at 139 feet
74.	17	50	13.1	4-21 1939	21.46	1.2	Top of well collar	53	.....	76½	Park supply	Log
75.	.....	.....	15.8	4-21 1939	17.54	1.0	Top of well collar	15	.....	76½	Public supply	Fossils identified Minerals studied in laboratory. Log
76.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	Supplies 4 families
77.	.....	.....	10+	May 1939	22.09	.....	.....	12	.....	76	Domestic and school	

TABLE 16—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
78.	NW. 1/4, SE. 1/4, Sec. 36, T. 7 S., R. 7 W.	E. B. Townsend	Fred Sutter	1935	2½	716	716	686	30	61	Sand	Pascagoula
79.	SW. 1/4, Sec. 32, T. 7 S., R. 6 W.	L. N. Dantzler Lbr. Co., and others No. 5	Gulf Rfg. Co. of La.	1933	.....	3600+	.....	.....	.....	.....	.....	.....
80.	NW. 1/4, NE. 1/4, Sec. 35, T. 7 S., R. 6 W.	Miss Moon	Fred Sutter	1939	3	945	.....	.....	30	65	Sand and gravel	Pascagoula
81.	NE. 1/4, NE. 1/4, Sec. 35, T. 7 S., R. 6 W.	W. C. Havens	Mr. Carter	1930±	.....	97	.....	.....	.....	.....	.....	Citronelle
82.	NE. 1/4, SW. 1/4, Sec. 36, T. 7 S., R. 6 W.	M. A. Wright	C. R. Switzer	1938	3	733	.....	.....	20	26	.....	Pascagoula
83.	SW. 1/4, NW. 1/4, Sec. 1, T. 8 S., R. 6 W.	Martin Veneer Corporation	Fred Sutter	1938	6	143	.....	.....	40	83	Sand and gravel	Citronelle
84.	On Railroad St. 5 ft. E. of reservoir, N. well	City of Pascagoula	Gray Artesian Well Co.	.....	6	1600	.....	.....	.....	.....	.....	Pascagoula
85.	On Railroad St. 5 ft. E. of reservoir, S. well	City of Pascagoula	Frank Sutter	1899	6	800	.....	.....	20	20	Sand	Pascagoula
86.	Pascagoula, 570 ft. N. of Pascagoula St.	Pascagoula Ice & Coal Co.	Gray Artesian Well Co.	1926	12	186	186	64 and 166	10 and 20	13 and 30	Sand and white gravel	Citronelle
87.	Foot of W. Delmas Ave., Pascagoula	Pascagoula Ice & Coal Co.	Mercer-Runyan Co.	1939	8	324	324	256	50	91	.....	Graham Ferry
88.	NW. cor. of Cedar and Orange Sts., Pascagoula	Southern Laundry Co.	Gray Artesian Well Co.	1933	4	770±	.....	.....	20	.....	.....	Pascagoula
89.	NW. 1/4, NW. 1/4, Sec. 5, T. 8 S., R. 6 W.	Pascagoula National Bank	.....	1915±	2½	700	.....	.....	.....	.....	.....	Pascagoula
90.	NW. 1/4, NW. 1/4, Sec. 5, T. 8 S., R. 6 W.	A. L. Staples	.....	1900±	2½	750	.....	.....	.....	.....	.....	Pascagoula
91.	Sec. 2, T. 8 S., R. 6 W.	Mexican-Gulf Canning Co.	Gray Artesian Well Co.	1936	4	550	.....	.....	.....	.....	.....	Pascagoula
92.	Foot of W. Delmas St., at Pascagoula	Pascagoula Ice & Coal Co.	Gray Artesian Well Co.	1930	6	192	192	.....	.....	.....	.....	Citronelle
93.	50 ft. NW. of Railroad St., reservoir, at Pascagoula	City of Pascagoula	C. M. Journey Company	1941	10	388	384	304	80	107	Sand	Graham Ferry
94.	SW. 1/4, NW. 1/4, Sec. 2, T. 8 S., R. 6 W.	M. M. Fleihas, Jr.	John A. Sutter	1912±	3	900	.....	.....	.....	.....	.....	Pascagoula
95.	SW. 1/4, SE. 1/4, Sec. 6, T. 8 S., R. 6 W.	L. & N. R. R. Tmbr Treat. Plt.	Mr. Bond	1903	4	736	.....	.....	.....	54	Greensand & fine gravel	Pascagoula
96.	SE. 1/4, NE. 1/4, Sec. 6, T. 8 S., R. 6 W.	New Lyon Consol. School	Fred Sutter	1940	2½	785	785	.....	.....	.....	.....	Pascagoula
97.	SW. 1/4, NE. 1/4, SE. 1/4, Sec. 9, T. 8 S., R. 6 W.	Wallace Quinn	C. R. Switzer	1927	3	766	.....	.....	.....	.....	.....	Pascagoula
98.	NW. 1/4, NW. 1/4, Sec. 10, T. 8 S., R. 8 W.	C. L. Cook	Fred Sutter	1926	3	514	.....	.....	20	84	Sand	Graham Ferry

TABLE 16—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): Pump	Temp. water °F.	Use of water	Other records and general information
78.	25	35	.....	.....	.....	.....	.....	40	.....	.....	Domestic and stock	92 feet of greensand at 281 feet Log
79.	.....	.....	.....	.....	23	.....	.....	.....	.....	.....	Abandoned	Oil prospect well
80.	33	55	17.9	5-9 1939	4	1.8	Top of well cross	20	.....	81	Domestic	60 and 40 feet of sand at 265 and 820 feet Kills flowers and plants
81.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dom., stock & irrigation	Electric suction pump
82.	25	25	14.4	5-9 1939	16	2.0	Top of well tee	3	.....	76	Domestic	
83.	.....	.....	-12	5-9 1939	7.24	0.0	Land surface at well head	.....	.....	.....	Industrial	Settling tank used to remove sand
84.	.....	.....	.....	.....	13.63	.....	X on well tee	132	.....	89	Public supply	Stand-by well, for emergency use only
85.	43	150	.....	.....	13.60	.....	.....	19	.....	78½	Public supply	Miss. Agr. Exper. Sta. Bull. 89, p. 78, 1905 Stand-by well, for emergency use only Log
86.	.....	.....	-15	5-9 1939	15.11	0.0	Top of well elbow	.....	210	.....	Industrial	5 horse-power electric motor drives centrifugal pump
87.	.....	.....	-6	5-9 1939	10.65	0.0	Top of coupling on pump line	.....	240	.....	Industrial	10 horse-power electric motor drives centrifugal pump
88.	.....	150	14	8-6 1941	14	2.0	Top of ¾" pipe at fountain	5	.....	78¼	Industrial	
89.	.....	.....	.....	.....	10.42	3.0	Top of well tee	.....	.....	.....	Domestic	
90.	.....	.....	.....	.....	15.99	2.5±	Top of plug on well head	.....	.....	.....	Domestic	Sufficient natural head to supply water to second floor
91.	.....	60	20.2	5-9 1939	6.85	2.7	Top of well tee	.....	.....	.....	Industrial	Drilled to 900 feet
92.	.....	.....	-13	.....	.....	.....	Land surface at well head	.....	50	.....	Industrial	5 horse-power electric motor drives centrifugal pump
93.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Public supply	53 feet of sand at 109 feet Log
94.	.....	.....	20	8-6 1941	7	0.3	Faucet in line	25	.....	.....	Domestic	
95.	40	150	20+	5-3 1939	9.31	0.0	Land surface at well head	.....	.....	.....	Domestic & industrial	In 1937 Fred Sutter deepened well from 714 ft. and put in 6-inch pipe. Log
96.	.....	50	26.9	9-16 1940	8.71	2.2	Top of bushing on well tee	.....	.....	.....	Public supply	
97.	35	125	32+	5-3 1939	13.20	0.0	Land surface at well head	.....	.....	74	Domestic	Flows through overflow 32 ft. above the land surface
98.	40	125	24.8	5-2 1939	6	2.8	Top of well tee	.....	.....	76¼	Domestic	

TABLE 16—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
99.	NW. 1/4, NE. 1/4, Sec. 10, T. 8 S., R. 8 W.	C. A. Birdsall	Fred Sutter	1934	3	510	.....	.....	30	50	Sand	Graham Ferry
100.	NW. 1/4, NE. 1/4, Sec. 10, T. 8 S., R. 8 W.	C. A. Birdsall	Fred Sutter	1936	4	570	570	550	20	45	Sand	Graham Ferry
101.	NW. 1/4, NE. 1/4, Sec. 10, T. 8 S., R. 8 W.	Mrs. J. R. Leavell	Fred Sutter	1926	4	1025	.....	.....	40	57	Sand and gravel	Pascagoula
102.	NW. 1/4, NE. 1/4, Sec. 10, T. 8 S., R. 8 W.	Mrs. J. R. Leavell	Fred Sutter	1936	4	503	.....	.....	40	50	Sand and gravel	Graham Ferry
103.	SW. 1/4, SW. 1/4, Sec. 12, T. 8 S., R. 7 W.	A. Khorassanian	Fred Sutter	1938	3	599	.....	.....	20	99	Sand and gravel	Graham Ferry
104.	SW. 1/4, SE. 1/4, Sec. 11, T. 8 S., R. 6 W.	City of Pascagoula	Mercer-Runyan Co.	1939	6	403	340	.....	80	126	Sand	Graham Ferry
105.	SW. 1/4, SE. 1/4, Sec. 11, T. 8 S., R. 6 W.	City of Pascagoula	Mercer-Runyan Co.	1939	8	403	340	.....	80	126	Sand	Graham Ferry
106.	SW. 1/4, SE. 1/4, Sec. 11, T. 8 S., R. 6 W.	City of Pascagoula	Mercer-Runyan Co.	1939	6	403	340	.....	80	126	Sand	Graham Ferry
107.	SW. 1/4, SE. 1/4, Sec. 11, T. 8 S., R. 6 W.	City of Pascagoula	Layne Central Company	1943	10	805	801	.....	80	90	Fine to medium sand	Pascagoula
108.	NW. 1/4, SW. 1/4, Sec. 18, T. 8 S., R. 5 W.	W. A. Pollock, Jr.	John A. Sutter	1914	3	810	.....	.....	.....	110	Sand	Pascagoula (?)
109.	Sec. 14, T. 8 S., R. 6 W.	City of Pascagoula		1910±	6	750	.....	.....	.....	.....	.....	Pascagoula
110.	SW. 1/4, SW. 1/4, Sec. 11, T. 8 S., R. 6 W.	City of Pascagoula		1916	6	750	.....	.....	.....	.....	.....	Pascagoula
110a.	At ship yards, Pascagoula	Ingall's Shipbldg. Corp.	Layne Central Company	1944	12	800	800	720	80	.....	.....	Pascagoula
111.	SW. 1/4, SE. 1/4, Sec. 28, T. 7 S., R. 5 W.	Delamorton No. 1	Pascagoula Development Co.	1911	6	3010	.....	.....	.....	.....	.....	.....
112.	NE. 1/4, SE. 1/4, Sec. 18, T. 9 S., R. 7 W., on N. shore Horn Is.	U. S. Army No. 2	Layne Central Company	1943	6	819	810(?)	770	40	60	Sand	Graham Ferry
113.	SW. 1/4, NE. 1/4, Sec. 26, T. 9 S., R. 7 W., Horn Island	U. S. Army No. 1	Layne Central Company	1943	6	836	836(?)	796	40	68	Fine to medium sand	Graham Ferry

TABLE 16—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
99.	15	50	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	40 feet of sand at 180 feet
100.	14	95	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
101.	41.4	240	36.6	5-2 1939	15	2.0	Top of well cross	290	.....	82	Domestic & irrigation	50 feet of sand at 500 feet
102.	20	125	16.1	5-2 1939	21	1.8	Top of well cross	.....	.....	74½	Domestic & irrigation	
103.	25	100	17.9	5-2 1939	15	1.5±	Top of well cross	.....	.....	.....	Domestic	90 feet of sand at 350 feet
104.	.....	.....	−4.1	Mar. 1939	8.95	1±	Top of well collar	.....	500	71½	Public supply	Wells 104, 105, and 106, were drilled shallow to secure water of low chloride content and are combined in one log.
105.	.....	.....	−8.3	Mar. 1939	13.51	1±	Top of well collar	.....	500	71½	Public supply	
106.	.....	.....	−6.5	Mar. 1939	9.19	1±	Top of well collar	.....	500	71½	Public supply	
107.	.....	400	51	July 1943	13	.....	Land surface at well	.....	.....	.....	Public supply	Minerals studied in laboratory Log
108.	44	135	.....	.....	10	.....	Land surface at well	135	.....	.....	Domestic	Oil prospect well. Artesian well Log
109.	.....	.....	2.0	8-6 1941	12.90	1.5±	X on well cross	10	.....	.....	Abandoned	Slightly salty Overflows into Gulf
110.	.....	.....	17.5	5-8 1939	10	2.9	Top of well tee	.....	400	.....	Public supply	8 horse-power electric motor drives centrifugal pump
110a.	69	300	.....	.....	15±	.....	.....	300	.....	.....	.....	Equipped with deep well turbine pump Flows freely
111.	.....	.....	.....	.....	10	.....	Land surface at well	.....	.....	.....	Abandoned	Oil prospect well
112.	.....	.....	.....	.....	10±	.....	Well collar	.....	.....	.....	.....	Minerals studied in laboratory Log
113.	39+	.....	.....	.....	10±	.....	Well collar	.....	.....	.....	.....	Minerals studied in laboratory Log

TABLE 17

WELLS IN PEARL RIVER COUNTY

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
1.	800 ft. W., 100 ft. N., SE. cor. Sec. 10, T. 1 S., R. 16 W.	Sou. Land and Timber Co., et al, No. 1	Gulf Rfg. Co. of La.	1933	.....	3730	199	.....	.....	.....	.....	.....
1a.	SE. 1/4, NE. 1/4, Sec. 8, T. 1 S., R. 15 W.	J. H. Sistrunk	John A. Sutter	.....	.....	205	205	.....	.....	10 85	Sand and gravel	Graham Ferry
2.	660 ft. N., 660 ft. E., SW. cor. Sec. 27, T. 1 S., R. 14 W.	Sou. Minerals Corp. No. 1	Placid Oil Co.	1942	.....	5401	543	.....	.....	.....	.....	.....
3.	NE. 1/4, NW. 1/4, Sec. 8, T. 2 S., R. 15 W.	C. L. Batson		1909	4	800±	.....	.....	24	.....	White sand	Pascagoula
4.	1980 ft. E., 660 ft. N., SW. cor. Sec. 9, T. 2 S., R. 16 W.	Sou. Minerals Corp. No. 3	Placid Oil Co.	1942	.....	5840	721	.....	.....	.....	.....	.....
5.	2310 ft. E., 330 ft. N., of SW. cor. Sec. 23, T. 2 S., R. 17 W.	Goodyear Yellow Pine Co. No. 2	Gulf Rfg. Co. of La.	1934	.....	3600	723	.....	.....	.....	.....	.....
6.	SE. 1/4, NW. 1/4, Sec. 30, T. 2 S., R. 15 W.	Peoples Water Service Co.	Layne Central Co.	1929±	12	536	.....	open	.....	.....	.....	Pascagoula
6a.	NE. 1/4, SE. 1/4, Sec. 25, T. 2 S., R. 16 W.	Pearl River Jr. College	John A. Sutter	.....	.....	900	.....	.....	.....	.....	.....	.....
7.	NE. 1/4, NW. 1/4, Sec. 17, T. 2 S., R. 18 W.	Mrs. B. E. Wheat	Mr. Keaton	1919	2	275	.....	.....	.....	.....	.....	Graham Ferry
8.	NW. 1/4, SE. 1/4, Sec. 1, T. 3 S., R. 18 W.	Strahan's School		.....	2±	300±	.....	.....	.....	.....	.....	Graham Ferry
9.	660 ft. S., 660 ft. W., NE. cor. Sec. 9, T. 3 S., R. 14 W.	Sou. Minerals Corp. No. 2	Placid Oil Co.	1942	.....	5495	625	.....	.....	.....	.....	.....
10.	NW. 1/4, NW. 1/4, Sec. 7, T. 3 S., R. 17 W.	H. L. Stewart	Fred Sutter	1928	4	492	492	452	40	80	Sand and gravel	Pascagoula
11.	SE. 1/4, E. 1/2, Sec. 5, T. 3 S., R. 18 W.	Sercy Wheat	Mr. Pierson	.....	2	239	.....	open	.....	.....	.....	Graham Ferry
12.	NE. 1/4, E. 1/2, Sec. 5, T. 3 S., R. 18 W.	Luther Cooper	W. M. Turnage	1938	2	233	.....	.....	20	40	.....	Graham Ferry
13.	NE. 1/4, NE. 1/4, Sec. 6, T. 3 S., R. 18 W.	E. T. Mitchell	W. M. Turnage	1938	2½	312	312	.....	20	.....	.....	Graham Ferry
14.	SE. 1/4, E. 1/2, Sec. 5, T. 3 S., R. 18 W.	Purvis Hall	Mr. Pierson	1923	2	391	.....	open	.....	.....	.....	Graham Ferry
15.	SE. 1/4, SW. 1/4, Sec. 6, T. 3 S., R. 18 W.	J. T. Moody	Pierce & Keaton	1920±	2	253	.....	.....	.....	.....	.....	Graham Ferry
16.	SE. 1/4, NE. 1/4, Sec. 7, T. 3 S., R. 18 W.	Mrs. M. Strahan	Mr. Finley	1939	2	278	.....	open	.....	.....	.....	Graham Ferry
17.	NW. 1/4, SE. 1/4, Sec. 14, T. 3 S., R. 18 W.	Ward M. Wheat	Pierce & Keaton	1920±	4	305	.....	open	.....	.....	.....	Graham Ferry
18.	SW. 1/4, SE. 1/4, Sec. 14, T. 3 S., R. 18 W.	Hubert Strahan	Pierce Deep Well Co.	1924	4	277	.....	.....	.....	.....	.....	Graham Ferry
19.	330 ft. S., 330 ft. E., NW. cor. Sec. 21, T. 3 S., R. 17 W.	Goodyear Yellow Pine Co. No. 1	Gulf Rfg. Co. of La.	1934	.....	2903	600	.....	.....	.....	.....	.....
20.	NW. 1/4, NE. 1/4, Sec. 27, T. 3 S., R. 16 W.	D. L. Smith	Mr. Cooper	1927±	4	300±	.....	.....	.....	.....	.....	Graham Ferry

TABLE 17—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
1.	.....	.....	.....	.....	310	.....	Derrick floor (?)	.....	.....	.....	Abandoned	Oil prospect well
1a.	.....	.....	.....	.....	350	.....	.....	.....	.....	.....	Abandoned	
2.	.....	.....	.....	.....	350	.....	Land surface at well	.....	.....	.....	Abandoned	Oil prospect well. Partial log
3.	.....	.....	-20	June 1939	.....	0.0	Land surface at well head	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 8 Gasoline powered suction pump
4.	.....	.....	.....	.....	199	.....	Land surface at well	.....	.....	.....	Abandoned	Oil prospect well
5.	.....	.....	.....	.....	166	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
6.	.....	.....	-80.0	June 1929	330	0.0	Land surface at well head	.....	108	.....	Public supply	10 horse-power electric turbine pump
6a.	.....	.....	.....	.....	342	.....	.....	.....	.....	.....	Abandoned	Log
7.	.....	.....	.....	.....	.....	.....	.....	.....	.....	69	Domestic and stock	
8.	.....	.....	.....	.....	.....	.....	.....	.....	.....	69	Domestic	Slight flow
9.	.....	.....	.....	.....	250	.....	Land surface at well	.....	.....	.....	Abandoned	Oil Prospect well. Partial log
10.	25	150	.....	.....	.....	.....	.....	140	.....	72	Domestic	Supplies 6 families Log
11.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
12.	.....	92	24.8	6-22 1939	77	1.6	Top of well tee	92	.....	68½	Domestic and stock	66 g. p. m. flow from 2-in. pipe reaching bottom of aquifer. 26 g. p. m. flow from 3-in. pipe containing 2-in. pipe set in top of the aquifer
13.	.....	.....	17.2	6-22 1939	85	2.2	Top of well tee	22	.....	69½	Domestic and stock	
14.	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	Domestic	
15.	.....	.....	.....	.....	.....	.....	.....	5	.....	68	Domestic and stock	
16.	.....	.....	.....	.....	.....	.....	.....	45	.....	69¾	Domestic and stock	
17.	.....	100	.....	.....	.....	.....	.....	30	.....	70	Domestic and stock	Hydrogen sulphide odor
18.	.....	70	13.0+	6-24 1939	.....	.....	Land surface at well	5	.....	71	Public supply	Hydrogen sulphide odor Supplies 25 families
19.	.....	.....	.....	.....	189	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
20.	.....	.....	-60	6-23 1939	.....	0.0	Land surface at well head	.....	.....	.....	Domestic and stock	Windmill powered pump Supplies 2 families

TABLE 17—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
20a.	SE. 1/4, SW. 1/4, Sec. 34, T. 3 S., R. 15 W.	Savannah School	Fred Sutter	.....	.....	907	.....	.....	.....	40	Sand and gravel	Pascagoula
21.	SW. 1/4, SE. 1/4, Sec. 4, T. 4 S., R. 16 W.	Batson-McGehee Co., Inc.		1905	5	700±	.....	.....	.....	.....	Sand	Pascagoula
22.	SW. 1/4, NE. 1/4, Sec. 14, T. 4 S., R. 18 W.	C. Ferguson	Cole Brothers	1938	3	425	.....	.....	20	.....		Graham Ferry
23.	660 ft. N. 660 ft. W., of SE. cor. Sec. 15, T. 4 S., R. 16 W.	Dorothy Batson et al No. 1	Placid Oil Co.	1942	.....	6134	620	.....	.....	.....		
24.	1640 ft. S., 575 ft. W., NE. cor. Sec. 22, T. 4 S., R. 16 W.	Batson-McGehee Co., Inc., et al No. 1	Gulf Rfg. Co. of La.	1933	.....	3545	278	.....	.....	.....		
25.	SE. 1/4, SE. 1/4, Sec. 20, T. 4 S., R. 17 W., at plant	La Row Investment Co.	Fred Sutter	1936	4	288	.....	.....	20	70	Sand and gravel	Graham Ferry
25a.	NE. 1/4, SW. 1/4, Sec. 21, T. 4 S., R. 17 W., at home	La Row Investment Co.	Fred Sutter	.....	.....	541	520	500	20	152	Sand	Pascagoula
25b.	SE. 1/4, SW. 1/4, Sec. 30, T. 4 S., R. 16 W.	McNeill High School	Fred Sutter	.....	.....	450	.....	.....	.....	90	Sand and gravel	Graham Ferry
25c.	Near cen. Sec. 26, T. 4 S., R. 14 W., at Barth	Edward Hines Lumber Co.	John A. Sutter	1923	.....	352	.....	.....	.....	152	Greensand and gravel	Graham Ferry
25d.	Near cen. Sec. 26, T. 4 S., R. 14 W., at Barth	Edward Hines Lumber Co.	John A. Sutter	1923	.....	1182	.....	.....	.....	29	Greensand	Pascagoula
26.	NW. 1/4, NE. 1/4, Sec. 31, T. 4 S., R. 16 W.	Mississippi Exper. Sta.		1928+	4	200	.....	.....	.....	.....		Graham Ferry (?)
27.	NW. 1/4, NE. 1/4, Sec. 6, T. 5 S., R. 16 W.	C. C. C. McNeill Side Camp		.....	4	180	.....	.....	.....	.....		Citronelle (?)
28.	SE. 1/4, NE. 1/4, Sec. 11, T. 5 S., R. 18 W.	L. D. Crosby		1910	4	685	.....	.....	.....	35	Gravel	Graham Ferry
29.	SW. 1/4, SW. 1/4, Sec. 11, T. 5 S., R. 18 W.	Horace Stewart	Mr. Pierson	1909	2	532	.....	.....	25±	.....		Graham Ferry
30.	NW. 1/4, NE. 1/4, Sec. 13, T. 5 S., R. 17 W.	Fred Horne	Pierce Deep Well Co.	1918	4	599	599	569	30	.....		Graham Ferry
31.	NW. 1/4, NE. 1/4, Sec. 13, T. 5 S., R. 17 W.	Fred Horne	Fred Horne	1918	6	212	.....	open	.....	.....		Graham Ferry
31a.	NW. 1/4, NE. 1/4, Sec. 13, T. 5 S., R. 17 W.	Fred Horne		1919	2½	915	.....	.....	40	80	Fine gray sand	Graham Ferry
32.	NE. 1/4, NE. 1/4, Sec. 13, T. 5 S., R. 17 W.	H. F. Smith		.....	1½	143	.....	.....	.....	33	Fine sand	Citronelle
32a.	NW. 1/4, SE. 1/4, Sec. 9, T. 5 S., R. 16 W.	U. S. Army	Fred Sutter	1942	.....	603	.....	.....	.....	65	Sand and gravel	Graham Ferry
33.	SE. 1/4, NE. 1/4, Sec. 25, T. 5 S., R. 18 W.	Harvey Burks	E. C. Nealy	1919±	3	500±	.....	open	.....	.....		Graham Ferry
34.	SE. 1/4, NE. 1/4, Sec. 35, T. 5 S., R. 17 W.	M. P. Clark	Fred Sutter	1929	4	607	607	567	40	73	Sand and gravel	Graham Ferry
35.	SE. 1/4, NE. 1/4, Sec. 35, T. 5 S., R. 17 W.	M. P. Clark	Fred Sutter	1929	4	581	581	.....	40	100	Sand and gravel	Graham Ferry

TABLE 17—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
20a.	.....	.....	.....	.....	315	.....	.....	.....	.....	.....	.....	Log
21.	.....	.....	−40	1930	.....	0.0	Land surface at well head	.....	.....	.....	Public supply and Industrial	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 5 (?)
22.	.....	.....	−55±	Dec. 1938	193	0.0	Land surface at well head	.....	.....	.....	Domestic and stock	Electric powered suction pump Supplies 1 family
23.	.....	.....	.....	.....	174	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
24.	.....	.....	.....	.....	170	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
25.	.....	75	−115	Nov. 1936	200	0.0	Land surface at well head	.....	.....	.....	Industrial	Log
25a.	−65	.....	.....	.....	190	.....	Land surface	.....	.....	.....	.....	Log
25b.	.....	.....	.....	.....	230	.....	.....	.....	.....	.....	.....	Log
25c.	5	75	.....	.....	150±	.....	.....	.....	.....	.....	.....	Log
25d.	20	25	.....	.....	150±	.....	.....	.....	.....	.....	.....	Log
26.	.....	.....	−85	1936	.....	0.0	Land surface at well head	.....	.....	.....	Domestic and stock	2½ horse-power gasoline motor powered suction pump
27.	.....	.....	−80	1939	.....	0.0	Land surface at well head	.....	.....	.....	Domestic	Gasoline powered pump Camp is abandoned
28.	.....	.....	.....	.....	.....	.....	.....	30	.....	74	Domestic and stock	Electric powered suction pump Casing leaks badly
29.	.....	52	24.3	6-15 1939	57	2.8	Top of well elbow	34	.....	72½	Domestic and stock	Hydrogen sulphide odor
30.	.....	.....	−60.24	6-21 1939	171	0.2	Bottom of well tee	.....	75	.....	Public supply	Supplies 15 families and 2 gasoline stations Depth to water was 50 ft. in 1921
31.	.....	.....	−68.7	6-21 1939	173	2.5	Top of 2" pipe in well cap	.....	.....	.....	Abandoned	
31a.	−38	.....	.....	.....	175	.....	.....	.....	.....	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 1 Log
32.	.....	.....	−45±	1939	.....	.....	.....	.....	.....	.....	Domestic	Windmill powered suction pump
32a.	.....	.....	.....	.....	150	.....	.....	.....	.....	.....	Prison camp	Static level near well collar Log
33.	.....	.....	.....	.....	.....	.....	.....	10	.....	73½	Domestic and stock	
34.	.....	.....	−31	Sept. 1929	.....	0.0	Land surface at well head	.....	.....	.....	Domestic	Hand pump
35.	.....	.....	−30	1929	.....	0.0	Land surface at well head	.....	.....	.....	Domestic and stock	Electric powered turbine pump

TABLE 17—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Geologic formations
36.	SW. 1/4, SW. 1/4, Sec. 33, T. 5 S., R. 16 W.	C. MacDonald	Lewis Fields	1936±	2	520	.....	open	.....	.....	.....	Graham Ferry
37.	350 ft. W., 300 ft. N., SE. cor. NE. 1/4, Sec. 33, T 5 S., R. 17 W.	May L. Williams No. 1	Gulf Rfg. Co. of La.	1934	.....	4870	3730	.....	.....	.....	.....	.....
38.	NE. 1/4, SE. 1/4, Sec. 36, T. 5 S., R. 18 W.	A. M. Sharp	W. M. Turnage	1938	3	620	620	600	20	.....	.....	Graham Ferry
39.	NW. 1/4, SE. 1/4, Sec. 11, T. 6 S., R. 17 W.	B. F. Cox	Fred Sutter	1927	4	944	944	914	30	84	.....	Graham Ferry
40.	NW. 1/4, NE. 1/4, Sec. 9, T. 6 S., R. 17 W.	Goodyear Yellow Pine Co.		1917	4	849	.....	.....	.....	82	Sand	Graham Ferry
41.	NW. 1/4, NE. 1/4, Sec. 9, T. 6 S., R. 17 W.	Goodyear Yellow Pine Co.	Fred Sutter	1939	6	854	854	794	60	77	Sand and gravel	Graham Ferry
42.	SW. 1/4, SW. 1/4, Sec. 28, T. 6 S., R. 17 W.	Claude Stockstill et al	Fred Sutter	1938	3	357	357	337	20	96	Sand and gravel	Graham Ferry
43.	NE. 1/4, NE. 1/4, Sec. 12, T. 6 S., R. 18 W.	H. E. Smith	John Swenson	1910	3	240	.....	open	.....	.....	Sand	Graham Ferry
44.	NW. 1/4, NE. 1/4, Sec. 15, T. 6 S., R. 17 W.	Y. M. C. A.	Fred Sutter	1928	4	1069	1069	1029	40	69	Sand and gravel	Graham Ferry
45.	SE. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	E. Puyper	Fred Sutter	1938	3	700	700	670	30	104	.....	Graham Ferry
46.	SW. 1/4, NE. 1/4, Sec. 15, T. 6 S., R. 17 W.	Crosby Dairy Products	Fred Sutter	1936	4	622	.....	.....	40	67	.....	Graham Ferry
46a.	At Picayune, between business district and Naval stores	J. Camp	Fred Sutter	1941	.....	1110	1110	1080	30	80	Sand	Graham Ferry
47.	SW. 1/4, NE. 1/4, Sec. 15, T. 6 S., R. 17 W.	Goodyear Yellow Pine Co.		1917	4	631	.....	.....	.....	.....	Sand	Graham Ferry
48.	SE. 1/4, NE. 1/4, Sec. 15, T. 6 S., R. 17 W.	James R. Starkstill	Fred Sutter	1929	3	638	638	598	40	98	Sand	Graham Ferry
49.	SE. 1/4, NE. 1/4, Sec. 15, T. 6 S., R. 17 W.	James R. Starkstill	Fred Sutter	1939	2½	843	843	813	30	78	.....	Graham Ferry
50.	NW. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	E. F. Tate Estate		1906	2½	553	.....	.....	.....	13	Blue sand	Graham Ferry
51.	NE. 1/4, NE. 1/4, Sec. 15, T. 6 S., R. 17 W.	J. W. Simmons		1895	2	500–	.....	open	.....	.....	Sand	Graham Ferry
52.	SW. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	Mr. Crosby		1927±	4	900	.....	.....	.....	.....	.....	Graham Ferry
53.	SW. 1/4, SW. 1/4, Sec. 14, T. 6 S., R. 17 W.	Mr. Russell	Lewis Fields	1938	3	590	.....	open	.....	.....	.....	Graham Ferry
54.	NW. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	H. Puyper	John Swenson	1910	2½	550	.....	open	.....	30	Blue sand	Graham Ferry
55.	NW. 1/4, SW. 1/4, Sec. 14, T. 6 S., R. 17 W.	James R. Starkstill	Fred Sutter	1937	3	830	830	790	40	65	Sand and gravel	Graham Ferry
56.	SW. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	Marguerite A. Williams		1911	2½	563	540	.....	.....	20	Sand	Graham Ferry

TABLE 17—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
36.	.....	.....	15+	6-17 1939	.....	0.0	Land surface at well head	.....	.....	79	Domestic and stock	
37.	.....	.....	.....	.....	75	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
38.	.....	.....	41.0	6-22 1939	60	1.0	Top of well cross	.....	.....	.....	Domestic and stock	Supplies 2 families
39.	94	550	.....	.....	.....	.....	.....	45	.....	81	Public supply	Supplies 25 families
40.	50	250	45	6-14 1939	64	0.0	Land surface at well head	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 17
41.	.....	.....	51	6-15 1939	.....	0.0	Land surface at well head	584	.....	.....	Industrial	
42.	15	50	13.4	6-22 1939	43	2.0	Top of well cross	10	.....	71	Domestic and stock	Supplies 3 families
43.	.....	75	.....	.....	.....	.....	.....	.....	.....	71	Domestic and stock	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 14
44.	.....	300	67.5	6-15 1939	68	3.3	Top of well elbow	.....	.....	82¼	Public supply	
45.	.....	.....	30.7	6-20 1939	61	0.0	Curb above overflow pipe	.....	150	.....	Public supply	Supplies 40 families
46.	35	200	.....	.....	.....	.....	.....	.....	125	.....	Industrial	
46a.	40	200	92	1941	65	.....	.....	200	.....	.....	.....	Log
47.	35	200	22.8	6-20 1939	61	5.5	Top of well tee	.....	.....	.....	Domestic and public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 18
48.	36	135	24.3	6-20 1939	64	2.5	Top of well cross	2	.....	.....	Public supply	Supplies 20 families
49.	56	110	52.3	6-20 1939	62	0.0	Land surface at well head	.....	.....	.....	Public supply	Supplies 25 families
50.	50	100	18+	6-15 1939	64	0.0	Land surface at well head	18	.....	74½	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 9
51.	25	27	25	1919	64	.....	Top of well collar	.....	.....	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 16 Filled with sand and ceased flowing
52.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Public supply	
53.	.....	.....	.....	.....	.....	.....	.....	.....	.....	76	Domestic and public supply	
54.	.....	100	25	6-16 1939	64	.....	Land surface at well	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 13. Supplies 6 families
55.	62	220	.....	.....	.....	.....	.....	10	.....	.....	Public supply	Supplies 35 families
56.	35	100	.....	.....	67	.....	.....	.....	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 12

TABLE 17—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand		
										Thickness (feet)	Character of material	Geologic formations
57.	SW. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	Marguerite A. Williams		1910	2½	525	515	.....	.....	35	Sand	Graham Ferry
58.	NW. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	E. Puyper	Fred Sutter	1938	3	850	850	820	30	51	Sand and gravel	Graham Ferry
59.	On Miss Hwy 11, 1500 ft. N. of P. O. at Picayune, SE. 1/4, NW. 1/4, Sec. 14, T. 6 S., R. 17 W.	H. Puyper		.....	.....	281	81	.....	.....	66	Quicksand and gravel	Citronelle
60.	SW. 1/4, SW. 1/4, Sec. 14, T. 6 S., R. 17 W.	C. Whitfield	Mr. Taylor	1938	2½	600+	.....	.....	25	.....	.....	Graham Ferry
61.	SW. 1/4, SW. 1/4, Sec. 14, T. 6 S., R. 17 W.	C. Whitfield	Swenson & Taylor	1924±	2½	528	.....	open	.....	.....	.....	Graham Ferry
62.	NW. 1/4, NE. 1/4, Sec. 14, T. 6 S., R. 17 W.	Bob Baylis	Lewis Fields	.....	2½	1000	.....	open	.....	.....	.....	Graham Ferry
63.	NW. 1/4, NE. 1/4, Sec. 14, T. 6 S., R. 17 W.	Bob Baylis		.....	3	700±	.....	.....	.....	.....	.....	Graham Ferry
64.	SW. 1/4, SE. 1/4, Sec. 17, T. 6 S., R. 16 W.	E. F. Tate	Fred Sutter	1938	2	728	728	708	20	90	Sand and gravel	Graham Ferry
65.	NW. 1/4, SE. 1/4, Sec. 16, T. 6 S., R. 16 W.	Salem School	Fred Sutter	1939	3	748	748	728	20	70	Sand and gravel	Graham Ferry
66.	NW. 1/4, NW. 1/4, Sec. 21, T. 6 S., R. 16 W.	H. M. Davis	Fred Sutter	1938	2	729	729	709	20	70	Sand and gravel	Graham Ferry
67.	SE. 1/4, NW. 1/4, Sec. 20, T. 6 S., R. 16 W.	L. O. Pigott	C. R. Switzer	1925	3	739	739	699	40	70	.....	Graham Ferry
68.	NW. 1/4, NW. 1/4, Sec. 23, T. 6 S., R. 17 W.	L. O. Crosby	Fred Sutter	1928	4	897	897	857	40	58	Sand and gravel	Graham Ferry
69.	NW. 1/4, SW. 1/4, Sec. 34, T. 6 S., R. 17 W.	Emmet Metzler	Fred Sutter	1927	3	952	952	922	30	82	Sand and gravel	Graham Ferry
70.	NE. 1/4, SE. 1/4, Sec. 39, T. 6 S., R. 17 W.	Nicholson School	John Swenson	1920±	2½	400	.....	.....	.....	.....	.....	Graham Ferry
71.	SE. 1/4, NE. 1/4, Sec. 38, T. 6 S., R. 17 W.	D. Carver		1896	2	239	225	.....	.....	9	Sand	Citronelle (?)
72.	SE. 1/4, SE. 1/4, Sec. 38, T. 6 S., R. 17 W.	R. Lindsey	Fred Sutter	1927	3	971	.....	.....	30	65	.....	Graham Ferry
73.	W. 1/2, Sec. 39, T. 6 S., R. 17 W.	Emmett R. Mitchell	W. M. Turnage	1938	2	734	734	714	20	.....	.....	Graham Ferry
74.	NE. 1/4, NW. 1/4, Sec. 1, T. 7 S., R. 17 W.	L. McQueen	Lewis Fields	1935	2	660	.....	open	.....	.....	.....	Graham Ferry
75.	At Nicholson, T. 7 S., R. 17 W.	V. B. Martin	Fred Sutter	1941	.....	1005	1005	1085	20	107	Sand	Graham Ferry

TABLE 17—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
57.	35	80	.....	.....	16±	.....	.....	80	.....	.....	Public supply	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 11 Log
58.	57.5	125	.....	.....	64	.....	.....	5	.....	.....	Public supply	Supplies 25 families
59.	.....	.....	.....	.....	64	.....	.....	.....	.....	.....	Abandoned	Log
60.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Public supply	Supplies 20 families
61.	.....	.....	18–	.....	.....	.....	Land surface at well	.....	.....	.....	Public supply	Supplies 10 or 15 families
62.	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	Public supply	Supplies about 10 families
63.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Public supply	Supplies 10 families
64.	40	60	35.5	6-17 1939	84	1.8	Top of well cross	15	.....	77¾	Domestic and stock	Supplies 1 family
65.	28	110	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	
66.	27.6	50	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
67.	40	125	33.1	6-16 1939	89	1.4	Top of well cross	3	.....	77½	Domestic and stock	
68.	69	.....	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned	
69.	85	275	70.4	6-14 1939	49	1.9	Top of well cross	110	.....	82	Domestic and stock	
70.	.....	.....	.....	.....	.....	.....	.....	.....	.....	73½	School	
71.	.....	30	–20	6-14 1939	48	.....	Mouth of well	.....	.....	.....	Domestic	U. S. Geol. Survey Water-Supply Paper 576, p. 381, 1928, Well 7
72.	92	260	.....	.....	.....	.....	.....	10	.....	.....	Domestic and stock	
73.	.....	.....	13+	6-14 1939	.....	0.0	Land surface at well	18	.....	78	Domestic and stock	Supplies 1 family
74.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic and stock	
75.	69	50	.....	.....	49	.....	.....	50	.....	.....	.....	Log

TABLE 18

WELLS IN STONE COUNTY

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Water-bearing sand: Depth to top of screen (feet)	Water-bearing sand: Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
1.	240 ft. E. G&SI milepost J-122G38, SW. 1/4, Sec. 2, T. 2 S., R. 12 W.	State of Mississippi (?)		1911	8	1155	800	190 710	90	250 & 70	Coarse gravel & quicksand	Pascagoula
1a.	SW. 1/4, Sec. 2 T. 2 S., R. 12 W., at Bond	J. E. North Lumber Co.		.....	.....	690	.....	.....	.....	160	Sand	Pascagoula
2.	SE. 1/4, SW. 1/4, Sec. 11, T. 2 S., R. 11 W.	School Land No. 1	Danciger Oil & Rfn., Inc.	.....	.....	.....	.....	.....	.....	.....	.....	.....
3.	Cen. SE. 1/4, SW. 1/4, Sec. 16, T. 2 S., R. 11 W.	School Land No. 1	Danciger Oil & Rfn., Inc.	1941	.....	8522	2211	.....	.....	.....	.....	.....
4.	SW. 1/4, SW. 1/4, Sec. 18, T. 2 S., R. 11 W.	Town of Wiggins	Gray Artesian Well Co.	1930	.....	197	197	100	97	97	Sand	Citronelle Pascagoula
5.	SW. 1/4, SW. 1/4, Sec. 18, T. 2 S., R. 11 W.	Town of Wiggins		1907	8	152	152	132	20	22	Sand and gravel	Citronelle
6.	SW. 1/4, SW. 1/4, Sec. 18, T. 2 S., R. 11 W.	Wiggins Ice Co.		1927	5	330	.....	.....	.....	.....	.....	Pascagoula
7.	SE. 1/4, SE. 1/4, Sec. 19, T. 2 S., R. 11 W.	Leroy F. Morris	Mr. Taylor	.....	.....	90	90	.....	.....	15	.....	Citronelle
8.	NW. 1/4, SW. 1/4, Sec. 21, T. 2 S., R. 10 W.	C. R. Moore	Mr. Knight	1928	.....	36	.....	.....	.....	.....	.....	Pascagoula
9.	1020 ft. S., 300 ft. W., of NE. cor. Sec. 21, T. 2 S., R. 10 W.	Wilbe Lbr. Co. & others No. 1	Gulf Rfg. Co. of La.	1933	8⅝	2044	181	.....	.....	.....	.....	.....
10.	NE. 1/4, NW. 1/4, SW. 1/4, Sec. 22, T. 2 S., R. 10 W.	T. W. Moore		.....	.....	60	.....	.....	.....	.....	.....	Citronelle
11.	SW. 1/4, NW. 1/4, NW. 1/4, Sec. 23, T. 2 S., R. 10 W.	J. A. McMurphy	Tom Hatton	.....	7	43	.....	.....	.....	.....	.....	Pascagoula
12.	NE. 1/4, SE. 1/4, NE. 1/4, Sec 25, T. 2 S., R. 11 W.	J. V. Jacobs	Florin Breland	1936	.....	70	.....	.....	.....	.....	.....	Citronelle
13.	SW. 1/4, NW. 1/4, Sec. 27, T. 2 S., R. 11 W.	C. A. Thompson	Tom Bonds	1925	.....	80	.....	.....	.....	.....	.....	Pascagoula
14.	SE. 1/4, NE. 1/4, Sec. 28, T. 2 S., R. 11 W.	C. A. Thompson	Tom Bonds	1928	.....	70	.....	.....	.....	.....	.....	Pascagoula

TABLE 18—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (–) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m. s. l.	Measuring point: Above or below (–) ground (feet)	Measuring point: Description of	Yield (g. p. m.): Flow	Yield (g. p. m.): pump	Temp. water °F.	Use of water	Other records and general information
1.	–165	.....	–170.9	2–10 1940	305	0.0	Land surface	.....	.....	.....	Abandoned	When mill was abandoned cover warped and well measured 445.5 ft. U. S. Geol. Sur. Water-Sup. Paper 576, p. 429, 1928, Well 1 Log
1a.	.....	.....	.....	.....	306	.....	.....	.....	.....	.....	.....	Mississippi Agr. Exper. Sta. Bull. 89. p. 76, 1905 Log
2.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Oil prospect well
3.	.....	.....	.....	.....	198	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
4.	.....	.....	–85	1930	.....	0.0	Land surf. at well	.....	500	69½	Public supply	Turbine pump powered by 2 Diesel engines. Water contains iron, treated with lime. Log
5.	.....	.....	–70	8–5 1919	288	.....	.....	.....	105	.....	Abandoned	U. S. Geol. Survey Water-Supply Paper 576, p. 429, 1928, Well 11
6.	.....	.....	.....	.....	.....	.....	.....	.....	30	.....	Industrial	.....
7.	.....	.....	–75	8–22 1941	.....	0.0	Land surf. at well	.....	.....	.....	Domestic	Hand pump
8.	.....	.....	–30	8–22 1941	.....	0.0	Land surf. at well	.....	.....	.....	Domestic	Hand pump
9.	.....	.....	.....	.....	188	.....	Derrick floor	.....	.....	.....	Abandoned	Oil prospect well
10.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Domestic	Hand pump
11.	.....	.....	–38	8–22 1941	.....	0.0	Land surf. at well	.....	.....	.....	Domestic	Bucket hoist. Dug well
12.	.....	.....	–50	8–22 1941	.....	0.0	Land surf. at well	.....	.....	.....	Domestic	Bucket hoist. Dug well
13.	.....	.....	–65	8–22 1941	.....	0.0	Land surf. at well	.....	.....	.....	Domestic and stock	Hand pump powered by one cylinder gasoline engine
14.	.....	.....	–48	8–22 1941	.....	0.0	Land surf. at well	.....	.....	.....	Domestic	Sand filled in bottom Bucket hoist

TABLE 18—(Continued)

No.	Location	Owner or name	Driller	Date completed	Diameter of well (inches)	Depth of well (feet)	Depth to which well is cased (feet)	Depth to top of screen (feet)	Length of screen (feet)	Water-bearing sand: Thickness (feet)	Water-bearing sand: Character of material	Water-bearing sand: Geologic formations
15.	SW. 1/4, NW. 1/4, NE. 1/4, Sec. 29, T. 2 S., R. 11 W.	J. A. Simpson		.....	.....	102	.....	.....	.....	.....	.....	Pascagoula
16.	SE. 1/4, NW. 1/4, Sec. 17, T. 3 S., R. 9 W.	C. C. C. Camp F-16	Gray Artesian Well Co.	1936	4	200	.....	.....	.....	18 5	Fine blue sand	Pascagoula
17.	NW. 1/4, NE. 1/4, Sec. 18, T. 3 S., R. 11 W.	I. C. Railroad		1914	5	360	.....	.....	.....	.....	Sand	Pascagoula
18.	SE. 1/4, SE. 1/4, Sec. 13, T. 3 S., R. 12 W.	Harrison-Stone-Jackson Jr. Col.	Sutter Well Works	1926	6	238	.....	.....	.....	70	Red sand	Pascagoula ?
19.	SE. 1/4, SE. 1/4, Sec. 13, T. 3 S., R. 12 W.	Harrison-Stone-Jackson Jr. Col.		1912	4	260	.....	.....	.....	.....	Sand and gravel	Pascagoula ?
20.	300 ft N., 300 ft. W., of SE. cor. Sec. 17, T. 3 S., R. 13 W.	Wilbe Lbr Co. & others No. 2	Gulf Rfg. Co. of La.	1933	8	2257	112	.....	.....	.....	.....	.....
21.	755 ft. N., 1153 ft. W., of SE. cor. Sec. 36, T. 3 S., R. 11 W.	L. N. Dantzler Lbr. Co. No. 7	Gulf Rfg. Co. of La.	1935	.....	7443	5467	.....	.....	.....	.....	.....
22.	Cen. SW. 1/4, SE. 1/4, Sec. 32, T. 3 S., R. 10 W.	University of Miss. No. 2	Harry I. Morgan	1942	.....	8500	1123	.....	.....	.....	.....	.....
23.	Cen. SE. 1/4, Sec. 35, T. 3 S., R. 10 W.	University of Miss. No. 1	Harry I. Morgan	1941	.....	8505	2233	.....	.....	.....	.....	.....
24.	NW. 1/4, SE. 1/4, Sec. 4, T. 4 S., R. 10 W.	L. N. Dantzler Lbr. Co. No. 2	Harry I. Morgan	1941	8¾	8506	990	.....	.....	.....	.....	.....
25.	Cen. NW. 1/4, SE. 1/4, Sec. 8, T. 4 S., R. 12 W.	L. N. Dantzler Lbr. Co. No. 1	Harry I. Morgan	1940	8¾	8772	1975	.....	.....	.....	.....	.....
26.	700 ft. W., 725 ft. N., SE. cor. SW. 1/4, NE. 1/4, S. 12, T. 4 S., R. 11 W.	L. N. Dantzler Lbr. Co. No. 2	Gulf Rfg. Co. of La.	1933	10	3078	98.5	.....	.....	.....	.....	.....
27.	Cen. SW. 1/4, SW. 1/4, Sec. 10, T. 4 S., R. 10 W.	L. N. Dantzler Lbr. Co. No. 3	Richard W Norton, Jr.	1943	.....	8352	1250	.....	.....	.....	.....	.....
28.	330 ft. N., 370 ft. E., of SW. cor. Sec. 22, T. 4 S., R. 11 W.	L. N. Dantzler Lbr. Co. No. 6	Gulf Rfg. Co. of La.	1934	.....	7581	6038	.....	.....	.....	.....	.....

TABLE 18—(Continued)

No.	Reported static head when drilled (feet)	Reported flow when drilled (g.p.m.)	Water level: Above or below (-) meas. pt. (feet)	Water level: Date measured	Measuring point: Feet above m.s.l.	Measuring point: Above or below (-) ground (feet)	Measuring point: Description of	Yield (g.p.m.): Flow	Yield (g.p.m.): Pump	Temp. water °F.	Use of water	Other records and general information
15.	.....	.....	−70	8–22 1941	.....	0.0	Land surf. at well	.....	.....	.....	Domestic.....	Water raised by windmill powered pump
16.	.....	.....	−3.31	6–28 1939	.....	0.5±	Top of well casing	.....	.....	.....	Abandoned....	18 feet of sand at 156 feet. Log
17.	.....	75	13.7	6–29 1939	123	4.0±	Top of well tee	22	.....	.....	Abandoned....	U. S. Geol. Survey Water-Supply Paper 576, p. 429, 1928, Well 9
18.	.....	.....	4±	6–29 1939	131	0.0	Land surf. at well	.....	75	73	Public supply.....	Turbine pump powered by 7½ horse-power electric motor
19.	10	50	4.8	6–29 1939	129	0.5	Top of well tee	15	.....	73½	Public supply.....	U. S. Geol. Survey Water-Supply Paper 576, p. 429, 1928, Well 7, Centrifugal pump powered by 3 horse-power electric motor
20.	.....	.....	.....	.....	297	.....	Derrick floor	.....	.....	.....	Abandoned....	Oil prospect well
21.	.....	.....	.....	.....	172	.....	Derrick floor	.....	.....	.....	Abandoned....	Oil prospect well
22.	.....	.....	.....	.....	164	.....	Derrick floor	.....	.....	.....	Abandoned....	Oil prospect well
23.	.....	.....	....	.....	181	.....	Derrick floor	.....	.....	.....	Abandoned....	Oil prospect well
24.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Abandoned....	Oil prospect well
25.	.....	.....	.....	.....	201	.....	Well collar	.....	.....	.....	Abandoned....	Oil prospect well
26.	.....	.....	.....	.....	172	.....	Derrick floor (?)....	.....	.....	.....	Abandoned....	Oil prospect well
27.	.....	.....	.....	.....	194	.....	Derrick floor	.....	.....	.....	Abandoned....	Oil prospect well
28.	.....	.....	.....	.....	148	.....	Derrick floor	.....	.....	.....	Abandoned....	Oil prospect well

INDEX

INDEX

INDEX

MAP SHOWING LOCATION OF WELLS AND AREA OF ARTESIAN FLOW

BY
ROBERT W. ADAMS
1944

SCALE
2 1 0 2 4 6 MILES

R18W R17W R16W R15W R14W R13W R12W R11W R10W R9W R8W R7W R6W R5W

T1S T2S T3S T4S T5S T6S T7S T8S T9S

LOUISIANA

MARION COUNTY
LAMAR COUNTY
PEARL RIVER COUNTY
FORREST COUNTY
PERRY COUNTY
STONE COUNTY
GREENE COUNTY
GEORGE COUNTY
JACKSON COUNTY
HARRISON COUNTY
HANCOCK COUNTY

POPLARVILLE
WIGGINS
LUCEDALE
PICAYUNE
PEARLINGTON
WAVELAND
BAY ST. LOUIS
PASS CHRISTIAN
LONG BEACH
GULFPORT
BILOXI
DEER ISLAND
PASCAGOULA
ROUND ISLAND
CAT ISLAND
SHIP ISLAND
HORN ISLAND
PETIT BOIS ISLAND

MISSISSIPPI SOUND

Pearl River
Wolf River
Tchoutacabouffa River
Red Creek
Pascagoula River
Escatawpa River

ALABAMA

EXPLANATION

- FLOWING WELL
- NON-FLOWING WELL
- OIL PROSPECT WELL
- LANDWARD LIMIT OF ARTESIAN FLOW