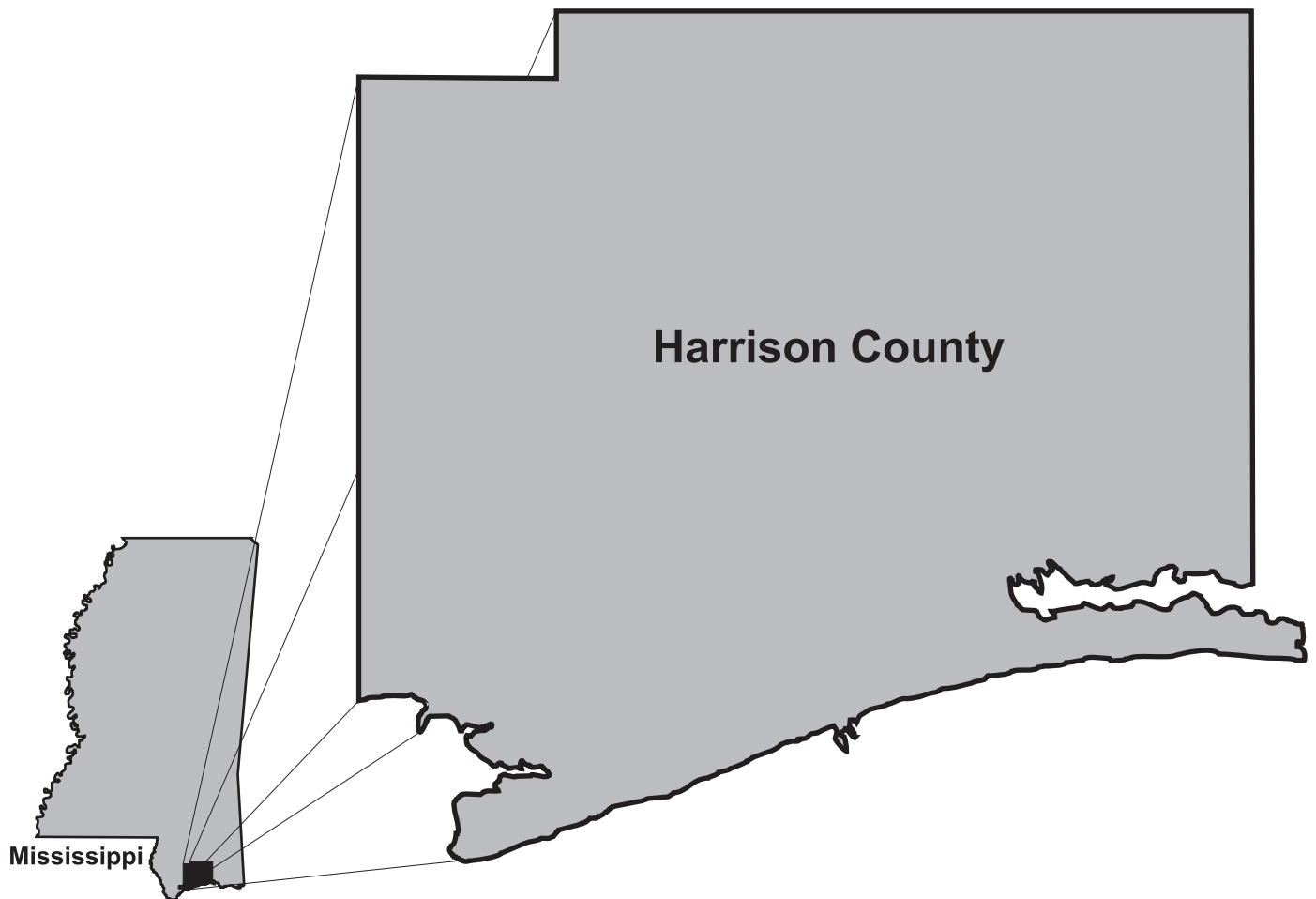


In cooperation with the Harrison County Development Commission

Quality of Water in Selected Wells, Harrison County, Mississippi, 1997–2005



Open-File Report 2007-1287

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By David E. Burt, Jr. and Heather L. Welch

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**U.S. Department of the Interior
U.S. Geological Survey**

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Suggested citation:

Burt, Jr., D.E., and Welch, H.L., 2007, Quality of water in selected wells, Harrison County, Mississippi, 1997–2005: U.S. Geological Survey Open-File Report 2007-1287, 16 p.

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Multiply	By	To obtain
Length		
inch (in.)	2.54	centimeter (cm)
foot (ft)	0.3048	meter (m)
Area		
square mile (mi ²)	2.590	square kilometer (km ²)

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius ($\mu\text{S}/\text{cm}$ at 25 °C).

Concentrations of chemical constituents in water are given either in milligrams per liter (mg/L) or micrograms per liter ($\mu\text{g}/\text{L}$).

Color is given in platinum-cobalt (Pt-Co) units.

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ABSTRACT

The U.S. Geological Survey collects, on a systematic basis, data needed to determine and evaluate the ground-water resources of Harrison County, Mississippi. Water samples were collected from 1997 to 2005 at selected wells screened in the Citronelle, Graham Ferry, Pascagoula, Hattiesburg, and Catahoula Sandstone aquifers and were analyzed for field properties (temperature, pH, specific conductivity, and color), total dissolved solids, chloride, iron, and manganese. The U.S. Environmental Protection Agency Secondary Drinking Water Regulation (SDWR) of 500 milligrams per liter for total dissolved solids was exceeded in water from three wells in the Hattiesburg aquifer and 12 wells in the Pascagoula aquifer. Chloride concentrations did not exceed the SDWR in any of the aquifers sampled, except for the Pascagoula aquifer where water in 10 wells had concentrations that exceeded the SDWR of 250 milligrams per liter. Iron concentrations in water from nine wells completed in the Graham Ferry and four wells completed in the Pascagoula aquifers exceeded the SDWR of 300 micrograms per liter. Thirty water samples collected from the Graham Ferry and 12 from the Pascagoula aquifer exceeded the SDWR of 50 micrograms per liter for manganese.

INTRODUCTION

The U.S. Geological Survey (USGS) collects, on a systematic basis, data needed to determine and evaluate the ground-water resources of Harrison County, Mississippi. Water samples are collected from the aquifers underlying Harrison County to assess water-quality characteristics and to determine changes in water quality. The resulting information forms the foundation for many of the area's water-resources management and planning activities and allows for the early detection of possible problems—for example, saltwater intrusion and contamination. Since April 1997, the USGS has collected water-quality samples from about 25 wells (of an approximately 100-well network), annually, for 4 consecutive years. Each year a different set of 25 wells was sampled. Then, during the fifth year, the original 25 wells were re-sampled, and the cycle was repeated. As much as possible, wells that

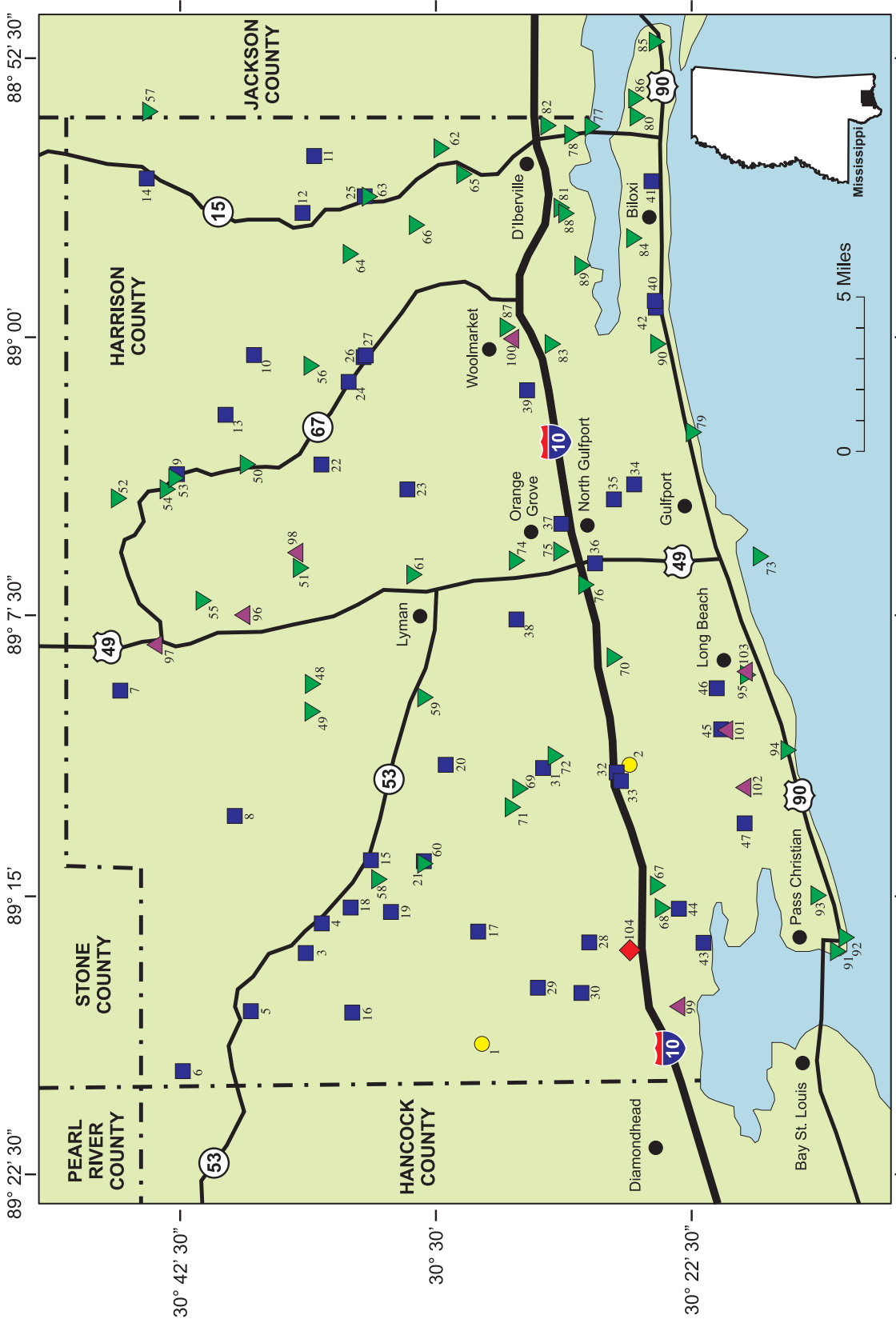
were damaged, destroyed, abandoned, or otherwise no longer available for sampling were replaced in the network with wells completed in the same aquifer. Thus, the nominal 100-well network has included 104 wells.

Sites were selected to represent the major geologic units and depths at which wells have been completed in Harrison County (table 1). Two of the 104 wells were completed in the Citronelle Formation, 45 in the Graham Ferry Formation, 48 in the Pascagoula Formation, 8 in the Hattiesburg Formation, and 1 in the Catahoula Sandstone; hereafter, in this report, these formations are referred to as the Citronelle, Graham Ferry, Pascagoula, Hattiesburg, and Catahoula aquifers, respectively.

This report presents results of the analyses of water samples collected from selected wells in Harrison County from 1997 to 2005. Temperature, pH, specific conductance, and color were monitored and recorded for all of the wells, and each well was sampled for chloride, dissolved solids, iron, and manganese. These constituents were compared to U.S. Environmental Protection Agency (USEPA) drinking-water standards for a frame of reference (U.S. Environmental Protection Agency, 2004).

METHODS OF SAMPLING AND ANALYSES

Water samples were collected (generally in April) from wells in Harrison County (fig. 1) from the Citronelle, Graham Ferry, Pascagoula, Hattiesburg, and Catahoula aquifers (in order from shallowest to deepest). The wells were pumped prior to sampling to withdraw enough water from the casing to allow the pH, and specific conductance to stabilize, thus ensuring the sample collected would accurately represent water from the aquifer. Final field (in situ) measurements of temperature, pH, and specific conductance were recorded. The samples were then shipped to the USGS National Water Quality Laboratory (NWQL) in Lakewood, CO, where the samples were analyzed using standard USGS procedures. Samples collected prior to 2004 were analyzed at the Water Quality Service Unit in Ocala, FL. Most samples were analyzed for color, pH, specific conductance, and concentrations of chloride, dissolved solids, iron, and manganese (Appendix I).



EXPLANATION
 Aquifer - number is well reference number listed in table 1 and appendix 1

- 1 Citronelle
- 43 Graham Ferry
- 92 Pascagoula
- 99 Hattiesburg
- 104 Catahoula

Figure 1. Locations of wells sampled in Harrison County, Mississippi, 1997 - 2005.

QUALITY ASSURANCE

The USGS participates annually in the National Field Quality Assurance (NFQA) Program. This program tests the accuracy of the equipment used in the field and the technician's skills at using this equipment. In addition, the USGS routinely collects quality-control samples to substantiate the validity of the data that the agency reports to its cooperators and the public. During the sampling period in April 2005, two replicate samples and one blank sample were collected. The replicate samples show the amount of variability in the samples and indicate any potential problems associated with the sampling process. The blank sample is collected from water that is prepared at the NWQL, free from any analytes being sampled for, and is used to identify any problems or deficiencies in field-cleaning procedures that could bias the results. Quality-control data are listed in Appendix II.

WATER QUALITY

Concentrations of chloride, dissolved solids, iron, and manganese for each well sampled since 1997 are presented graphically with box plots which show the distribution of the water-quality data. These four constituents were chosen because of their importance to the quality of drinking water. Chloride, along with dissolved solids, affects the taste of the water. Iron and manganese in water cause undesirable brownish-colored stains on porcelain plumbing fixtures and laundry. Water with high levels of iron and manganese can also have a foul taste and a bad odor. The results are discussed, by aquifer, below. The results may not be representative of the entire areal extent of the aquifers underlying Harrison County, but are representative of the aquifers at the sampled wells. Although the continued sampling effort is designed, with time, to produce enough long-term, distributed measurements to define water-quality trends for the aquifers, additional sampling will be necessary to determine the source and significance of changes in these water-quality measurements.

For most of these water-quality properties and constituents, no systematic change was detected. However, substantial changes occurred at a small number of individual wells. Additional sampling will be necessary to determine the source and significance of these changes.

Field Properties

The two wells in the Citronelle aquifer had depths of 70 and 84 feet (table 1). A pH value of 4.8, which is lower than the USEPA SDWR range of 6.5 to 8.5, was recorded at one well. Specific conductivity ranged from 21 to 202 microsiemens per centimeter ($\mu\text{S}/\text{cm}$) in four samples, with a median value of 111 $\mu\text{S}/\text{cm}$. Color in five samples ranged from <5 to 5 platinum-cobalt (Pt-Co) units, with a median value of 5 Pt-Co units.

Well depths in the Graham Ferry aquifer ranged from 63 to 829 feet, with a median value of 467 feet in the 45 sampled wells (table 1). Field measurements of pH ranged from 5 to 9.2 in 85 samples, with a median value of 7.7. Six samples were below the SDWR of 6.5, and eight samples were above the SDWR limit of 8.5. Specific conductivity ranged from 20 to 540 $\mu\text{S}/\text{cm}$ in 89 samples, with a median of 203 $\mu\text{S}/\text{cm}$. Color in 90 samples ranged from <1 to 50 Pt-Co units, with a median value of 9 Pt-Co units.

Well depths for the 48 wells sampled in the Pascagoula aquifer ranged from 476 to 1,320 feet, with a median depth of 807.5 feet (table 1). Field measurements of pH ranged from 5 to 10.2 in 98 samples, with a median value of 8.6. Four values were below the SDWR of 6.5, and 59 values exceeded the upper SDWR limit of 8.5. Specific conductivity ranged from 28 to 1,270 $\mu\text{S}/\text{cm}$ in 101 samples, with a median of 310 $\mu\text{S}/\text{cm}$. Color in 94 samples ranged from <1 to 50 Pt-Co units, with a median value of 10 Pt-Co units.

Well depths for the eight wells sampled in the Hattiesburg aquifer ranged from 1,140 to 1,860 feet, with a median depth of 1,560 feet (table 1). Field measurements of pH ranged from 8.2 to 9.2 in 18 samples, with a median value of 8.8. Sixteen pH values exceeded the upper SDWR limit of 8.5. Specific conductivity ranged from 26 to 1,270 $\mu\text{S}/\text{cm}$ in 20 samples, with a median of 436 $\mu\text{S}/\text{cm}$. Color in 20 samples ranged from <5 to 30 Pt-Co units, with a median value of 10 Pt-Co units.

The well sampled in the Catahoula aquifer had a total depth of 2,413 feet (table 1). The two field measurements of pH were 8.7, which exceeded the upper SDWR limit of 8.5. Specific conductivities in two samples were 593 and 595 $\mu\text{S}/\text{cm}$. Color in two samples was 10 and 20 Pt-Co units.

Total Dissolved Solids

Total dissolved-solids concentrations in four samples from two wells in the Citronelle aquifer ranged from 20 to 162 milligrams per liter (mg/L), with a median value of 87 mg/L. Although the two wells had large differences in total dissolved-solids concentrations, resampling during the fifth year of the cycle produced similar results. The lowest values of total dissolved-solids concentrations generally were from wells screened in the Graham Ferry aquifer (fig. 2). Total dissolved-solids concentrations ranged from 15 to 334 mg/L, with a median value of 160 mg/L. The highest values of total dissolved-solids concentrations generally were from wells screened in the Pascagoula aquifer (fig. 2). Total dissolved-solids concentrations ranged from 16 to 990 mg/L, with a median value of 200 mg/L. Detections in water at 12 wells were above the SDWR of 500 mg/L for total dissolved solids. Total dissolved-solids concentrations in the Hattiesburg aquifer ranged from 20 to 704 mg/L, with a median value of 266 mg/L (fig. 2). Concentrations in three wells exceeded the SDWR for total dissolved-solids. Total dissolved-solids concentrations of 328 and 346 mg/L were measured in 1997 and 2001, respectively, for a single well screened in the Catahoula aquifer. Changes in total dissolved-solids concentrations over time in each aquifer were small, and no overall trend was observed.

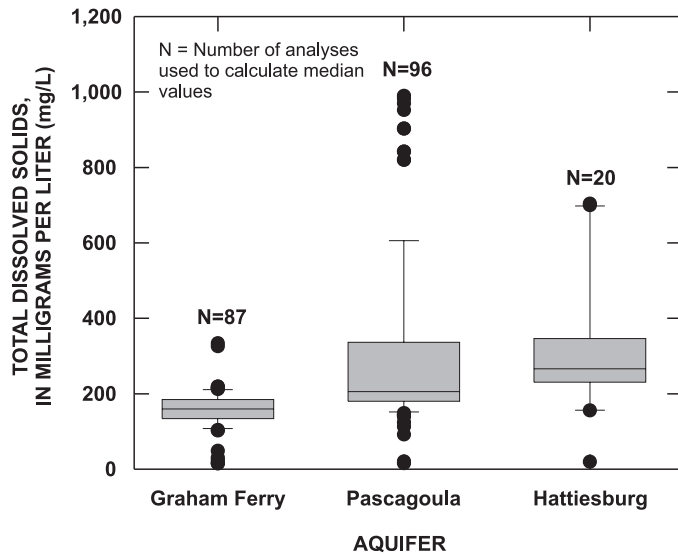


Figure 2. Distribution of total dissolved-solids concentrations in the Graham Ferry, Pascagoula, and Hattiesburg aquifers of Harrison County, Mississippi, 1997-2005.

Chloride

Chloride concentrations for the Citronelle aquifer are limited to data for two wells. Each well was sampled twice, and the concentrations were nearly identical, ranging from 3.3 to 3.4 mg/L.

Chloride concentrations ranged from 2.2 to 18 mg/L, with a median value of 3.25 mg/L, for the wells screened in the Graham Ferry aquifer (fig. 3). All concentrations were well below the SDWR for chloride. For wells that have been sampled multiple times since 1997, the chloride concentrations have remained nearly the same from year to year, varying by 2 mg/L or less.

The highest chloride concentrations generally were from wells screened in the Pascagoula aquifer. Chloride concentrations in the Pascagoula aquifer ranged from 2.0 to 430 mg/L, with a median value of 5.0 mg/L (fig. 3). Water in 10 wells exceeded the SDWR for chloride. Water-quality data since 1997 indicate that although chloride concentrations generally have remained nearly constant for most wells screened in the Pascagoula aquifer, there was a slight increase with time. Site 86 (well M0790) had the largest difference over time, an increase from 310 mg/L in 1997 to 347 mg/L in 2005.

Chloride concentrations ranged from 1.9 to 230 mg/L, with a median value of 23.6 mg/L, for wells screened in the Hattiesburg aquifer (fig. 3). No concentrations exceeded the SDWR for chloride. For most wells with multiple samplings, chloride concentrations varied by less than 5 mg/L. The maximum change in chloride concentrations was a decrease of 11 mg/L from 1997 to 2005 at site 100 (well M0711).

In 1997, a chloride concentration of 76 mg/L was measured in the single well screened in the Catahoula aquifer. When this well was sampled again in 2001, the chloride concentration was 75 mg/L.

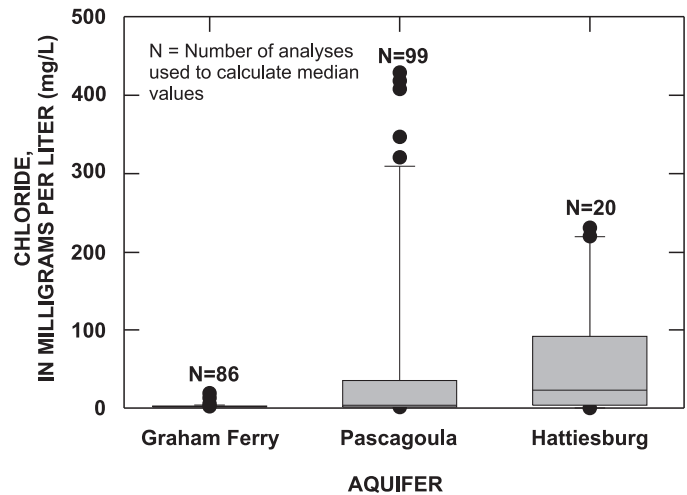


Figure 3. Distribution of chloride concentrations in the Graham Ferry, Pascagoula, and Hattiesburg aquifers of Harrison County, Mississippi, 1997-2005.

Iron

Iron concentrations in water from the Citronelle aquifer were analyzed in samples from two wells through time. Each well was sampled twice, and the iron concentrations ranged from 6 to 70 micrograms per liter ($\mu\text{g/L}$) - well below the SDWR of 300 $\mu\text{g/L}$. The median value was 37 $\mu\text{g/L}$. Differences in concentrations during resampling were small and statistically insignificant.

Iron concentrations ranged from less than 2 to 3,330 $\mu\text{g/L}$, with a median value of 47.5 $\mu\text{g/L}$, for the wells screened in the Graham Ferry aquifer (fig. 4). Water in nine wells exceeded the SDWR limit for iron. For three wells that were sampled multiple times, iron concentrations increased substantially. Concentrations at site 5 (well A0049) increased from 57 to 580 $\mu\text{g/L}$. An increase from 2,600 to 3,330 $\mu\text{g/L}$ was recorded at site 10 (well D0019), and an increase from 1,500 to 2,040 $\mu\text{g/L}$ at site 22 (well G0247).

The highest iron concentration (4,550 $\mu\text{g/L}$) measured was in the Pascagoula aquifer (site 54, well C0292). Water from the majority of samples from this aquifer had concentrations within the SDWR limit; with only four water samples exceeding the limit. Iron concentrations ranged from less than 2 to 4,550 $\mu\text{g/L}$, with a median value of 10 $\mu\text{g/L}$ (fig. 4). Since 1997, changes in iron concentration generally were small for most wells. The major exception to this is site 54 (well C0292), where iron concentrations increased from 600 to 4,550 $\mu\text{g/L}$ from 1999 to 2003.

Iron concentrations were low, ranging from 3 to 18 $\mu\text{g/L}$, with a median value of 6.5 $\mu\text{g/L}$, for wells screened in the Hattiesburg aquifer (fig. 4). For wells with multiple years of sampling, iron concentrations generally changed little.

In 2001, an iron concentration of 26 $\mu\text{g/L}$ was measured in well J0211, which is screened in the Catahoula aquifer.

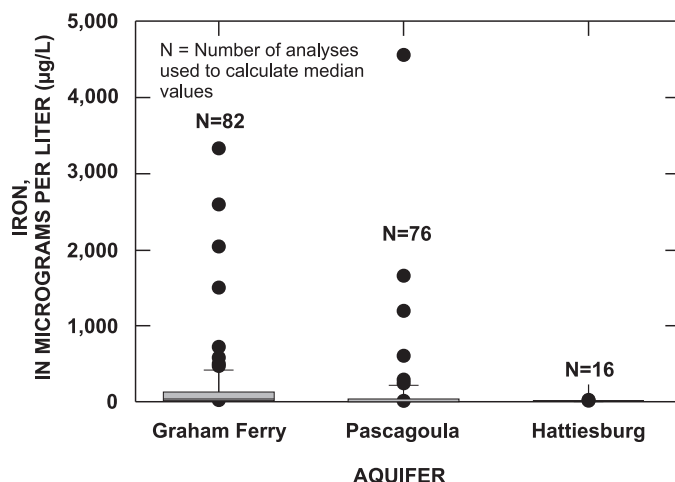


Figure 4. Distributions of iron concentrations in the Graham Ferry, Pascagoula, and Hattiesburg aquifers of Harrison County, Mississippi, 1997-2005.

Manganese

Manganese concentrations in the Citronelle aquifer were determined for two wells. Each well was sampled twice, and manganese concentrations ranged from 6 to 48 µg/L, with a median value of 27 µg/L. Differences in manganese concentrations during resampling were statistically insignificant.

Manganese concentrations ranged from less than 2 to 297 µg/L, with a median value of 30 µg/L, for the wells screened in the Graham Ferry aquifer (fig. 5). Concentrations exceeded the SDWR for manganese in 30 wells. For wells that were sampled multiple times since 1997, changes in manganese concentration were statistically insignificant.

The highest manganese concentrations were from wells screened in the Pascagoula aquifer (fig. 5). Manganese concentrations ranged from 0.8 to 382 µg/L, with a median value of 8.25 µg/L. Water in 12 wells exceeded the SDWR for manganese. For most of the wells sampled in multiple years,

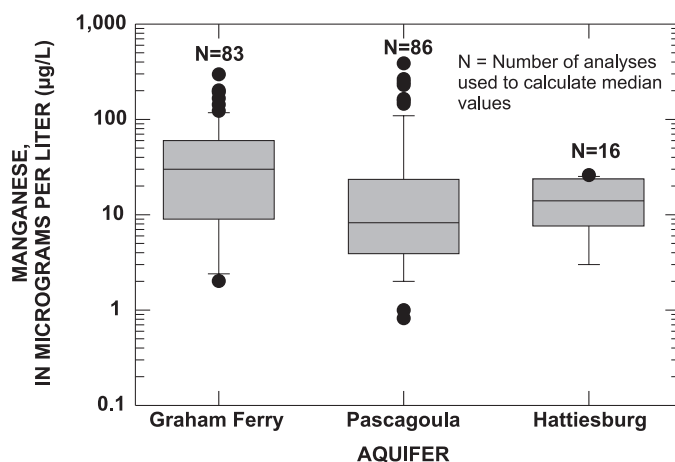


Figure 5. Distribution of manganese concentrations in the Graham Ferry, Pascagoula, and Hattiesburg aquifers of Harrison County, Mississippi, 1997-2005.

the changes in manganese concentrations were statistically insignificant. However, a large increase in manganese concentration, from 20 to 382 µg/L, occurred at site 54 (well C0292).

Manganese concentrations ranged from 3 to 26 µg/L, with a median value of 14 µg/L, for wells screened in the Hattiesburg aquifer (fig. 5). The SDWR for manganese was not exceeded in water from any of the sampled wells. For wells with multiple years of samples, manganese concentrations changed little with time.

In 2001, a manganese concentration of 30 µg/L was measured at site 115 (well J0211), screened in the Catahoula aquifer.

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6 Quality of Water in Selected Wells, Harrison County, Mississippi, 1997-2005

Table 1. Selected site information for wells sampled in Harrison County, Mississippi, 1997-2005

[--, indicates no data available; -, indicates well flows without a pump; CTHL, Catahoula; CRNL, Citronelle; GRMF, Graham Ferry; HBRG, Hattiesburg; PCGL, Pascagoula; LSD, Land Surface Datum; GPM, gallons per minute; P, public supply; U, unused; T, Institution; I, irrigation; R, recreation; N, industrial; S, stock; F, fire protection; Q, aquaculture]

Well ref number (fig. 1)	USGS well number	Section, township, range	Well depth (feet)	Aquifer	Water level (feet below LSD)	Water-level date	E-log available	Well use
1	E0109	SWNWS32T06SR13W	84	CRNL	7	2/1/1982	--	H
2	K0246	SESES21T07SR12W	70	CRNL	22.74	4/8/1998	--	H
3	A0033	NWSWS35T05SR13W	515	GRMF	97	4/1/1974	--	H
4	A0047	NESWS20T05SR13W	410	GRMF	100	10/18/1991	--	H
5	A0049	NESWS20T05NR13W	220	GRMF	110	6/2/1988	--	H
6	A0056	NESWS07T05SR13W	184	GRMF	110	7/12/1980	--	H
7	B0012	NESES35T04SR12W	230	GRMF	--	--	--	H
8	B0221	SENWS20T05SR12W	430	GRMF	106.95	4/6/1998	--	H
9	C0019	SENE11T05SR11W	230	GRMF	167.97	4/17/2000	--	H
10	D0019	SWSWS21T05SR10W	326	GRMF	86	12/1/1962	--	H
11	D0021	SESES32T05SR09W	252	GRMF	28	5/1/1971	--	
12	D0047	SWNWS31T05S R09W	300	GRMF	75.65	4/14/1999	--	H
13	D0049	NWNES19T05SR10W	92	GRMF	44	4/18/1977	--	H
14	D0052	NESWS05T05SR09W	277	GRMF	40	11/12/1975	--	H
15	E0099	NENWS12T06SR13W	420	GRMF	114.5	4/23/1997	--	H
16	E0105	NWNWS09T06SR13W	245	GRMF	40	2/22/1979	--	H
17	E0119	NENES35T06SR13W	470	GRMF	60	8/10/1994	--	H
18	E0120	NENES11T06SR13W	600	GRMF	--	--	--	H
19	E0126	SENE14T06SR13W	550	GRMF	--	--	--	H
20	F0375	NENES28T06SR12W	560	GRMF	80	7/11/1985	--	H
21	F0406	SWNWS19T06SR12W	270	GRMF	60	4/1/1998	--	H
22	G0247	NWNWS01T06SR11W	500	GRMF	158.77	4/9/1998	YES	H
23	G0457	NWSWSES14T06SR11W	450	GRMF	24.74	4/13/1999	YES	I
24	H0279	SWSES05T06SR10W	490	GRMF	129.06	4/18/2000	YES	R
25	H0321	NWNES07T06S R09W	330	GRMF	40	11/4/1980	--	H
26	H0403	SWNWS09T06SR10W	540	GRMF	131.56	4/10/1998	--	H
27	H0440	SWNWS09T06SR10W	63	GRMF	--	--	--	H
28	J0132	NESES15T07SR13W	357	GRMF	94.76	4/7/1998	--	H
29	J0172	NWNES09T07SR13W	430	GRMF	97	9/1/1973	--	H
30	J0210	SWNES16T07SR13W	435	GRMF	95	12/19/1986	--	H
31	K0258	NENES09T07SR12W	570	GRMF	72.73	4/8/1998	--	H
32	K0329	S21T07NR12W	310	GRMF	--	--	--	I
33	K0388	NESWS21T07SR12W	600	GRMF	60	6/13/2003	--	S
34	L0084	NWNES26T07SR11W	645	GRMF	57.18	12/30/1986	--	P
35	L0452	NWSES23T07SR11W	560	GRMF	68.55	4/18/2000	--	I
36	L0701	SESW16T07SR11W	829	GRMF	52	5/4/1995	YES	P

Table 1. Selected site information for wells sampled in Harrison County, Mississippi, 1997-2005--Continued

Well ref number (fig. 1)	USGS well number	Section, township, range	Well depth (feet)	Aquifer	Water level (feet below LSD)	Water-level date	E-log available	Well use
37	L0702	SWSES10T07SR11W	560	GRMF	50	9/14/1987	--	H
38	L0725	SENES06T07SR11W	710	GRMF	87.65	4/18/2000	YES	P
39	M0399	NESWS05T07SR10W	528	GRMF	30	3/1/1972	--	P
40	M0740	SWNES34T07SR10W	503	GRMF	50	12/17/1992	--	H
41	M0753	S31T07SR09W	680	GRMF	71.07	4/25/1997	YES	P
42	M0800	NESWS34T07SR10W	680	GRMF	--	--	--	I
43	N0333	SENWS16T08SR13W	700	GRMF	11.35	4/7/1998	YES	P
44	N0337	SWNWS08T08SR13W	357	GRMF	4	6/21/1977	--	H
45	O0011	SESES03T08SR12W	590	GRMF	19.75	10/20/1982	--	P
46	O0308	SESES02T08SR12W	764	GRMF	29.63	4/22/1997	YES	P
47	O0319	NWSWS08T08SR12W	467	GRMF	18.91	4/7/1998	--	P
48	B0229	NWSWS36T05SR12W	600	PCGL	60	7/3/1985	--	H
49	B0245	SENWS35T05SR12W	706	PCGL	70.77	4/17/2000	--	P
50	C0146	SWSES14T05SR11W	476	PCGL	150	8/16/1976	--	H
51	C0240	NESENE32T05SR11W	635	PCGL	40	6/7/1975	--	H
52	C0286	NWSWS35T04SR11W	730	PCGL	120	8/28/1987	--	H
53	C0288	SENES11T05SR11W	645	PCGL	150	10/1/1988	YES	H
54	C0292	NWNES11T05SR11W	515	PCGL	--	--	--	H
55	C0327	SWNES17T05SR11W	810	PCGL	79	8/23/1997	--	H
56	D0026	NESES32T05SR10W	705	PCGL	72	7/1/1973	--	H
57	D0045	SES04T05SR09W	620	PCGL	40	11/6/1980	--	H
58	E0125	SESES12T06SR13W	638	PCGL	119.38	4/16/1998	--	H
59	F0402	NWNES23T06SR12W	650	PCGL	--	--	--	U
60	F0405	SWNWS19T06SR12W	950	PCGL	100	4/16/1998	YES	T
61	G0005	SWSWS16T06SR11W	758	PCGL	47.63	4/9/1998	--	P
62	H0048	SESES20T06SR09W	840	PCGL	-5.54	4/24/1997	--	H
63	H0288	SWNES17T06SR09W	537	PCGL	30	4/7/1995	--	H
64	H0291	SWSWS01T06SR10W	640	PCGL	3	1/27/1975	--	H
65	H0302	NESWS29T06SR09W	745	PCGL	35	11/21/1977	--	H
66	H0308	NENES24T06SR10W	882	PCGL	54.88	4/14/1999	--	H
67	J0219	SWSES25T07SR13W	940	PCGL	62.24	4/17/1998	--	H
68	J0290	SESES26T07SR13W	935	PCGL	55	6/1/1997	--	R
69	K0324	SENWS04T07SR12W	950	PCGL	50	9/20/1990	--	H
70	K0327	SENES24T07SR12W	780	PCGL	44.43	4/9/1998	YES	P
71	K0370	NENES05T07SR12W	680	PCGL	--	--	--	H
72	K0382	NWNWSWS10T07SR12W	800	PCGL	--	--	YES	P
73	L0175	S09T08SR11W	1320	PCGL	-9	9/1/1968	YES	F
74	L0231	SWNES04T07SR11W	697	PCGL	62.23	10/22/1982	--	P
75	L0670	SWSES09T07SR11W	750	PCGL	56	7/9/1990	--	P

8 Quality of Water in Selected Wells, Harrison County, Mississippi, 1997-2005

Table 1. Selected site information for wells sampled in Harrison County, Mississippi, 1997-2005--Continued

Well ref number (fig. 1)	USGS well number	Section, township, range	Well depth (feet)	Aquifer	Water level (feet below LSD)	Water-level date	E-log available	Well use
76	L0729	SENES17T07SR11W	805	PCGL	56.9	4/23/2000	--	H
77	M0266	NWSES22T07SR09W	1236	PCGL	-17.56	4/24/1997	--	H
78	M0643	SESWS09T07SR09W	840	PCGL	28.8	5/8/1985	YES	P
79	M0657	SWSWS31T07SR10W	900	PCGL	50.75	12/30/1986	YES	P
80	M0734	NES27T07SR09W	1160	PCGL	--	--	YES	N
81	M0742	SWSWS07T07SR09W	900	PCGL	89.45	4/20/2000	--	H
82	M0749	SWNES09T07SR09W	860	PCGL	41	7/5/1996	--	P
83	M0751	SWNES09T07SR10W	805	PCGL	48.49	10/31/1996	YES	P
84	M0752	NENWS25T07SR09W	965	PCGL	41	12/7/1995	YES	I
85	M0785	S34T07SR09W	740	PCGL	52.12	4/25/1997	YES	P
86	M0790	NWS33T07SR09W	1300	PCGL	-16	4/22/1997	--	N
87	M0791	NWNWS03T07SR10W	751	PCGL	55.24	4/9/1998	YES	P
88	M0793	SWSWS07T07SR09W	1060	PCGL	--	--	YES	U
89	M0795	SENES14T07SR09W	900	PCGL	51.84	4/20/2000	YES	P
90	M0812	SES28T07SR10W	950	PCGL	51	4/9/2003	--	P
91	N0287	SWNWS33T08SR13W	966	PCGL	-15	9/2/1976	YES	P
92	N0313	SWNWS34T08SR13W	982	PCGL	9.16	4/19/2000	YES	P
93	N0327	NENWS25T08SR13W	858	PCGL	6	4/23/1997	YES	P
94	O0123	NWNWS22T08SR12W	873	PCGL	36	4/19/2000	YES	P
95	O0296	NESWS12T08SR12W	862	PCGL	33	12- -1986	YES	P
96	C0112	NWSWS20T05SR11W	1140	HBRG	45	1/15/1975	YES	H
97	C0274	SWSWS06T05SR11W	1412	HBRG	78	3/18/1985	YES	P
98	C0325	SENES33T05SR11W	1414	HBRG	33.3	4/13/1999	YES	P
99	J0213	S32T07SR13W	1775	HBRG	-13.86	4/23/1997	--	N
100	M0711	NENES04T07SR10W	1472	HBRG	--	--	--	H
101	O0307	NENES10T08SR12W	1640	HBRG	-37	4/22/1997	YES	P
102	O0320	NWSWS09T08SR12W	1860	HBRG	-37.4	4/7/1998	--	Q
103	O0355	SESWS12T08SR12W	1670	HBRG	-27.5	4/7/1998	YES	P
104	J0211	NENES27T07SR13W	2413	CTHL	-10.7	3/17/1988	YES	H

APPENDIXES

10 Quality of Water in Selected Wells, Harrison County, Mississippi, 1997-2005

Appendix I. Water quality data for selected wells sampled from 1997 to 2005, Harrison County, Mississippi

[LSD, Land Surface Datum; Pt-Co, Platinum-Cobalt; uS/cm, Microsiemens per centimeter at 25 deg Celcius; mg/L, Milligrams per Liter; ug/L, Micrograms per Liter; <, less than; --, indicates no data available; E, estimated]

Well reference number (fig. 1)	Station number	Sample date	Well depth (feet below LSD)	Color, (Pt-Co units)	pH, field	pH, lab	Specific conductance, lab (uS/cm)	Specific conductance, field (uS/cm)	Temperature, water (deg C)	Chloride, (mg/L)	Total dissolved solids (mg/L)	Iron (ug/L)	Manganese (ug/L)
Citronelle Aquifer													
1	302844089192001	04/13/99	84	5	4.8	5.8	23	27	--	3.3	24	66	6
	302844089192001	04/07/03	84	<5	--	6.4	21	25	--	3.4	20	70	7
2	302506089103501	04/08/98	70	<5	--	8.2	202	200	--	3.3	162	6	47
	302506089103501	04/16/02	70	<5	--	7.9	199	204	--	3.3	150	8	48
Graham Ferry Aquifer													
3	303355089160801	04/18/02	515	<5	--	6.2	49	54	22	3.5	49	3	2
4	303541089185801	04/12/99	410	5	7.9	8.5	239	226	--	5.3	146	6	30
	303541089185801	04/07/03	410	<5	8	8.6	233	233	--	5.4	134	7	31
5	303546089190901	04/12/99	220	5	6.5	6.9	93	102	--	3.2	115	57	6
	303546089190901	04/07/03	220	<5	7.1	6.8	100	104	--	3.6	109	580	53
6	303724089200001	04/12/99	184	5	6.2	6.8	101	98	--	3.7	133	40	11
	303724089200001	04/07/03	184	<5	6.9	7	98	99	--	4.2	130	38	9
7	303911089090801	04/23/97	230	20	6.9	7.1	102	99	--	--	--	--	--
	303911089090801	04/09/01	230	<5	5.5	6.9	105	101	20.5	2.8	120	519	50
	303911089090801	04/11/05	230	15	6.9	6.8	97	103	--	2.6	103	472	47.8
8	303554089125401	04/06/98	430	<5	--	7	104	104	--	3.2	110	260	18
	303554089125401	04/15/02	430	<5	7	6.6	102	108	22	3.3	110	228	18
9	303732089032101	04/17/00	230	<5	8.8	8.4	274	281	--	2.5	185	30	17
	303732089032101	04/26/04	230	10	8	8.4	280	291	23	2.2	190	55	16
10	303530088595201	04/23/97	326	10	7.3	7.2	128	131	--	--	--	--	--
	303530088595201	04/09/01	326	40	6.3	7.1	129	154	23	3.0	123	2600	190
	303530088595201	04/11/05	326	50	6.8	7	120	138	--	2.8	125	3330	194
11	303812089011001	04/17/00	252	<5	8.7	8.4	282	288	23	3.3	166	10	5
	303812089011001	04/26/04	252	10	8.2	8.4	281	301	22.5	3.4	182	4	5
12	303402088555001	04/14/99	300	5	7.3	7.8	206	202	--	2.8	162	125	53
	303402088555001	04/09/03	300	<5	7.9	7.8	202	207	--	3.0	166	151	54
13	303612089012901	04/13/99	92	5	5	5.3	20	28	--	3.5	15	69	3
	303612089012901	04/09/03	92	<5	7.9	7.5	37720	57	--	3.6	31	3	10
14	303820088543601	04/14/99	277	5	5.1	5.6	22	32	--	2.8	25	5	3
	303820088543601	04/09/03	277	<5	--	6.7	21	27	--	3.1	16	4	2
15	303354089161801	04/23/97	420	10	7.4	7.9	198	151	--	--	--	--	--
	303354089161801	04/09/01	420	<5	8.6	8.4	238	271	24	4.5	153	8	16
	303354089161801	04/14/05	420	2	8.4	8.6	223	240	--	4.4	144	21	16.6
16	303235089182501	04/13/99	245	5	6.9	7.7	169	165	--	3.2	141	45	70

Appendix I. Water quality data for selected wells sampled from 1997 to 2005, Harrison County, Mississippi--Continued

Well reference number (fig. 1)	Station number	Sample date	Well depth (feet below LSD)	Color, (Pt-Co units)	pH, field	pH, lab	Specific conductance, lab ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	Temperature, water (deg C)	Chloride, (mg/L)	Total dissolved solids (mg/L)	Iron ($\mu\text{g}/\text{L}$)	Manganese ($\mu\text{g}/\text{L}$)
17	303235089182501	04/07/03	245	<5	7.6	7.9	168	172	--	3.6	131	113	70
	302910089153401	04/13/99	470	5	--	7.2	170	168	--	3.0	144	233	140
	302910089153401	04/07/03	470	<5	6.8	7.5	171	176	--	3.4	136	721	160
18	303240089152801	04/08/98	600	20	7.3	7.4	158	156	--	3.4	142	150	120
	19	303132089153501	04/18/00	550	<5	7.1	7.3	173	171	--	3.2	131	111
303132089153501		04/28/04	550	5	7.3	7.6	172	180	22.5	3.4	148	61	59
20	302958089112401	04/08/98	560	5	8.5	8.4	251	250	--	4.0	174	7	2
	302958089112401	04/15/02	560	<5	8.4	8.4	250	257	23.5	4.1	185	10	2
21	303035089141001	04/16/98	270	<5	7.2	6.9	122	123	--	--	104	20	4
22	303329089025801	04/09/98	500	20	7.5	7.3	123	131	--	3.0	124	1500	59
	303329089025801	04/18/02	500	20	7.3	7	124	133	--	3.0	130	2040	44
23	303104089034001	04/13/99	450	10	8.2	8.6	330	318	23.5	2.7	219	44	18
	303104089034001	04/26/04	450	10	8.5	8.5	326	334	23.5	2.5	219	27	16
24	303244089003601	04/18/00	490	<5	8.1	8.3	322	328	23	2.2	211	43	35
	303244089003601	04/26/04	490	10	7.7	8.3	324	330	23.5	2.3	211	52	38
25	303237088552401	04/14/99	330	5	8.2	8.5	319	307	--	15	206	7	4
	303237088552401	04/08/03	330	<5	8.4	8.5	303	308	--	13	214	7	4
26	303216088595701	04/10/98	540	<5	7.7	7.9	268	272	--	2.5	194	70	97
	303216088595701	04/18/02	540	<5	7.7	7.7	265	269	--	2.5	188	68	89
27	303216088595602	04/18/02	63	<5	6.2	6.7	24	28	--	4.3	18	18	9
28	302600089153301	04/07/98	357	5	7.4	7.7	201	201	--	3.3	166	210	70
	302600089153301	04/16/02	357	<5	7.6	7.5	201	205	--	3.3	156	57	51
29	302745089174501	04/07/98	430	10	7.5	7.7	204	206	--	3.5	164	260	100
	302745089174501	04/16/02	430	<5	7.3	7.3	201	205	--	3.5	167	319	100
30	302610089173401	04/19/00	435	<5	7.4	7.5	202	205	23	3.4	158	94	110
	302610089173401	04/28/04	435	5	7.5	7.8	170	178	20	5.0	150	61	114
31	302651089113801	04/08/98	570	<5	7.4	7.6	192	191	--	3.4	160	10	63
	302651089113801	04/16/02	570	<5	7.5	7.4	191	192	24	3.3	154	32	69
32	302506089113601	04/19/00	310	<5	7.9	7.8	212	216	23.5	3.1	155	34	37
33	302503089115301	05/03/04	600	8	7.5	7.9	221	229	23	3.0	168	115	297
34	302440089033001	04/24/97	645	10	8.1	8.2	246	245	24	3.5	180	--	--
	302440089033001	04/11/01	645	<5	8.1	8.2	246	239	25	3.2	173	31	16
	302440089033001	04/12/05	645	2	7.8	8.2	227	249	24.5	3.1	174	60	17.7

12 Quality of Water in Selected Wells, Harrison County, Mississippi, 1997-2005

Appendix I. Water quality data for selected wells sampled from 1997 to 2005, Harrison County, Mississippi--Continued

Well reference number (fig. 1)	Station number	Sample date	Well depth (feet below LSD)	Color, (Pt-Co units)	pH, field	pH, lab	Specific conductance, lab (µS/cm)	Specific conductance, field (µS/cm)	Temperature, water (deg C)	Chloride, (mg/L)	Total dissolved solids (mg/L)	Iron (µg/L)	Manganese (µg/L)
35	302500089032601	04/18/00	560	<5	6.6	7.9	216	212	24.5	3.4	157	146	25
36	302545089054501	04/18/00	829	<5	8.6	8.8	246	255	25	2.8	171	7	12
	302545089054501	04/27/04	829	5	8.1	8.5	250	260	26	2.9	176	4	13
37	302642089043701	04/18/00	560	<5	8.1	7.9	172	173	21.5	2.9	145	132	60
	302642089043701	04/29/04	560	5	7.3	8.1	171	176	23	3.1	148	142	64
38	302800089072001	04/18/00	710	<5	8.1	8.2	229	233	25	2.7	169	45	34
	302800089072001	04/27/04	710	5	7.6	8.2	230	238	25	2.8	176	50	34
39	302745089004401	04/20/00	528	5	6.8	7.7	173	177	23.5	2.9	140	275	12
	302745089004401	05/03/04	528	7	7.6	7.8	173	176	24	3.0	147	299	14
40	302336088583201	04/16/99	503	10	9.2	8.9	330	--	--	2.8	215	25	2
	302336088583201	04/10/03	503	<5	8.5	9	325	337	--	3.0	212	27	2
41	302348088550301	04/25/97	680	20	8.5	8.5	303	297	--	5.3	194	--	--
	302348088550301	04/10/01	680	<5	8.3	8.3	322	309	26.5	6.1	207	13	30
	302348088550301	04/13/05	680	8	8.1	8.4	298	322	26.9	6.3	201	24	34.1
42	302334088583501	04/20/00	680	<5	7.6	9.1	324	329	25	4.6	202	2	8
	302334088583501	04/29/04	680	10	9	9	323	334	25	4.6	203	<2	8
43	302239089161001	04/07/98	700	20	8.9	9	530	529	25	16	326	10	12
	302239089161001	04/19/02	700	10	8.6	9	540	554	--	18	334	10	12
44	302246089160201	04/19/00	357	<5	7.5	7.6	202	209	22.5	3.1	160	83	120
	302246089160201	04/28/04	357	<5	7.8	8	203	210	21	3.4	162	87	120
45	302215089102001	04/22/97	590	20	8	8	190	185	--	3.1	152	--	--
	302215089102001	04/10/01	590	<5	8.1	8	193	185	24.5	2.9	154	67	5
	302215089102001	04/12/05	590	<1	7.8	7.8	176	184	24.6	2.8	158	93	4.4
46	302217089091301	04/22/97	764	10	8.4	8.3	247	240	26	4.1	176	--	--
	302217089091301	04/10/01	764	<5	8.1	8.3	246	240	26	3.2	176	14	57
	302217089091301	04/12/05	764	2	8.3	8.3	228	206	--	3.0	182	14	59.9
47	302134089130201	04/07/98	467	<5	--	8	226	224	--	3.5	198	8	2
	302134089130201	04/19/02	467	<5	7	8	227	223	--	3.5	190	7	2
Pascagoula Aquifer													
48	303351089090901	04/06/98	600	<5	--	8.6	183	--	--	2.6	152	10	5
	303351089090901	04/15/02	600	<5	8.6	8.5	183	188	22.5	2.5	144	2	5
49	303405089100001	04/17/00	706	<5	8.8	8.7	213	218	25.5	2.3	145	13	15
	303405089100001	04/26/04	706	5	8.3	8.4	213	220	25	2.4	149	9	12
50	303540089024801	04/23/97	476	20	5.6	5.3	29	29	--	--	--	--	--
	303540089024801	04/09/01	476	<5	5.2	5.2	30	24	21	6.5	21	6	3
	303540089024801	04/11/05	476	2	5	4.7	28	26	--	5.2	16	26	2.5

Appendix I. Water quality data for selected wells sampled from 1997 to 2005, Harrison County, Mississippi--Continued

Well reference number (fig. 1)	Station number	Sample date	Well depth (feet below LSD)	Color, (Pt-Co units)	pH, field	pH, lab	Specific conductance, lab ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	Temperature, water (deg C)	Chloride, (mg/L)	Total dissolved solids (mg/L)	Iron ($\mu\text{g}/\text{L}$)	Manganese ($\mu\text{g}/\text{L}$)
51	303400089073301	04/06/98	635	20	--	7	105	109	--	3.0	124	1200	42
52	303851089043301	04/21/99	730	5	8.5	8.9	308	295	22.5	2.5	191	3	9
53	303736089032701	04/21/99	645	5	8.3	8.6	301	292	23.5	2.5	200	11	8
54	303746089033501	04/21/99	515	10	6.4	6.9	98	97	24.5	3.2	113	601	20
	303746089033501	04/09/03	515	<5	--	6.8	104	--	--	3.2	92	4550	382
55	303651089063401	04/21/99	810	10	8.9	9.1	433	425	24.5	2.4	265	5	5
	303651089063401	04/09/03	810	40	9.2	9.2	413	422	--	2.4	252	4	4
56	303335088593001	04/09/98	705	40	8.9	8.9	594	592	--	3.1	372	20	16
	303335088593001	04/18/02	705	20	8.6	8.9	601	611	24	3.2	370	5	8
57	303813088530801	04/14/99	620	5	8.4	9	255	251	--	2.1	169	5	3
	303813088530801	04/09/03	620	<5	8.6	9.1	254	262	--	2.3	169	2	4
58	303155089143901	04/16/98	638	<5	7.4	7.3	175	177	--	3.4	152	190	140
	303155089143901	04/16/02	638	<5	7.2	7	174	168	23.5	3.3	140	276	96
59	303037089093101	04/24/97	650	20	7.6	7.6	172	175	24	3.7	142	120	63
60	303035089141101	04/16/98	950	10	9.1	9.1	303	301	26	2.3	194	20	2
	303035089141101	04/19/02	950	<5	8.7	9	300	308	25.5	2.3	187	11	1
61	303114089055601	04/09/98	758	5	9.2	9	282	283	26	2.4	176	20	2
	303114089055601	04/15/02	758	<5	8.9	9	274	283	26	2.4	181	5	2
62	303009088540601	04/24/97	840	20	8.6	8.8	946	911	--	160	514	--	--
	303009088540601	04/22/99	840	--	8.4	8.7	947	925	25	160	--	--	--
	303009088540601	04/12/01	840	10	8.9	8.7	951	918	23.5	160	538	4	29
	303009088540601	04/11/05	840	--	8.4	8.5	924	938	--	157	531	--	--
63	303124089542501	04/22/99	537	10	9.1	9.1	310	292	24.5	--	--	4	2
	303124089542501	04/08/03	537	<5	9.1	9.1	299	302	--	8.2	191	2	2
64	303217088570401	04/22/99	640	10	9	9	279	272	25	6.1	180	3	3
	303217088570401	04/08/03	640	<5	9.2	9.1	275	283	--	6.6	181	2	3
65	302930088543401	04/22/99	745	10	8.7	8.8	508	492	26	46	299	4	13
	302930088543401	04/08/03	745	10	8.8	9	487	--	--	43	291	<2	12
66	303052088561001	04/14/99	882	10	9.2	9	320	313	25	6.9	206	3	7
	303052088561001	04/08/03	882	30	8.5	9.1	307	309	--	7.1	183	54	33
67	303404089145001	04/07/98	940	10	9.1	9.1	405	398	--	2.7	256	3	6
68	302403089153301	04/19/00	935	5	8.1	9.1	417	428	26	2.6	261	4	10
	302403089153301	04/27/04	935	10	9	8.9	410	430	26.5	2.7	258	5	10
69	302741089124001	04/15/99	950	10	9.4	9.1	363	357	--	2.0	229	5	1
	302741089124001	04/10/03	950	<5	8.6	9.2	362	372	--	2.2	218	<2	<1

14 Quality of Water in Selected Wells, Harrison County, Mississippi, 1997-2005

Appendix I. Water quality data for selected wells sampled from 1997 to 2005, Harrison County, Mississippi--Continued

Well reference number (fig. 1)	Station number	Sample date	Well depth (feet below LSD)	Color, (Pt-Co units)	pH, field	pH, lab	Specific conductance, lab (µS/cm)	Specific conductance, field (µS/cm)	Temperature, water (deg C)	Chloride, (mg/L)	Total dissolved solids (mg/L)	Iron (µg/L)	Manganese (µg/L)
70	302518089082301	04/09/98	780	5	8.8	8.6	276	276	25	3.1	196	20	3
	302518089082301	04/17/02	780	<5	8.5	8.7	274	278	25.5	3.2	188	24	4
71	302809089123401	04/15/99	680	5	7.9	7.9	205	202	--	3.4	163	52	240
	302809089123401	04/10/03	680	<5	8.1	8.1	201	206	--	3.6	153	50	228
72	302656089111201	04/21/00	800	<5	7.9	8.5	273	275	24	2.7	186	18	19
	302656089111201	04/28/04	800	5	8.4	8.5	274	286	25.5	2.9	190	10	23
73	302110089053301	04/15/99	1320	40	9.1	8.9	781	779	28.5	8.3	494	13	14
74	302810089060002	04/24/97	697	20	8.4	8.5	229	224	25	3.7	156	--	--
	302810089060002	04/11/01	697	<5	8.4	8.5	227	220	25	3.4	169	6	20
	302810089060002	04/12/05	697	<1	8.4	8.4	210	218	26.6	3.3	162	11	21.6
75	302646089053001	04/24/97	750	10	8.4	8.5	240	237	25.5	3.5	170	--	--
	302646089053001	04/11/01	750	<5	8.3	8.5	238	231	25.5	3.3	174	4	25
	302646089053001	04/12/05	750	2	7.8	8.4	223	249	--	3.2	166	8	25.4
76	302605089062101	04/23/99	805	5	8	8.3	260	258	26	2.8	187	63	69
	302605089062101	04/10/03	805	<5	8.1	8.5	260	270	--	2.8	185	10	54
77	302557088530301	04/24/97	1236	30	8.6	8.7	1870	1800	--	430	982	--	--
	302557088530301	04/23/99	1236	--	9.9	9.5	1850	1790	23	430	--	--	--
	302557088530301	04/12/01	1236	20	9.5	9.6	1840	1770	23	410	990	<2	3
	302557088530301	04/10/03	1236	50	9.7	10	1840	1890	--	420	952	<2	2
	302557088530301	04/13/05	1236	--	10.2	10.1	1800	1840	--	419	970	E3	0.8
78	302710088531501	04/24/97	840	10	8.8	9	556	545	27	38	324	--	--
	302710088531501	04/10/01	840	10	9	8.9	566	547	27.5	39	335	<2	--
	302710088531501	04/13/05	840	8	8.1	8.5	372	404	--	25	245	21	4.5
79	302304089020301	04/24/97	900	10	8.7	8.8	275	271	--	4.1	180	--	--
	302304089020301	04/11/01	900	<5	8.9	8.8	273	268	26	3.8	184	4	8
	302304089020301	04/12/05	900	8	8.8	8.7	256	275	--	3.5	173	E5	8.5
80	302438088531001	04/17/02	1160	20	8.6	8.3	1810	1810	--	410	988	63	33
81	302640088555301	04/20/00	900	<5	7.3	7.6	195	204	24.5	3.3	158	228	150
	302640088555301	04/28/04	900	10	7.4	8.2	194	204	23	3.4	164	290	156
82	302708088532601	04/20/00	860	5	8.5	9.1	379	386	27.5	14	232	4	14
	302708088532601	04/29/04	860	10	8.9	8.9	379	395	27	16	235	<2	13
83	302701088593301	10/31/96	805	<5	9.3	9.2	325	316	27	5.0	210	4	2
	302701088593301	04/12/01	805	5	9.4	9.2	322	314	26.5	6.4	206	3	5
	302701088593301	04/13/05	805	8	8.6	8.8	304	330	--	11	203	56	4.3
84	302445088563501	04/22/97	965	20	9.2	9.2	346	342	28	5.0	208	8	3
	302445088563501	04/10/01	965	10	9.1	9.2	348	342	27	6.6	219	7	5

Appendix I. Water quality data for selected wells sampled from 1997 to 2005, Harrison County, Mississippi--Continued

Well reference number (fig. 1)	Station number	Sample date	Well depth (feet below LSD)	Color, (Pt-Co units)	pH, field	pH, lab	Specific conductance, lab ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	Temperature, water (deg C)	Chloride, (mg/L)	Total dissolved solids (mg/L)	Iron ($\mu\text{g}/\text{L}$)	Manganese ($\mu\text{g}/\text{L}$)
85	302342088515201	04/25/97	740	20	9.4	9.2	450	441	--	18	258	--	--
	302342088515201	04/10/01	740	10	9	9.2	501	486	27	37	297	3	3
	302342088515201	04/13/05	740	15	9.1	9.2	489	527	27.8	48	303	E6	3.6
86	302441088523901	04/22/97	1300	20	8.5	8.6	1530	1480	29	310	820	40	17
	302441088523901	04/23/99	1300	--	9.2	8.4	1560	1480	24	320	--	--	--
	302441088523901	04/12/01	1300	40	7.4	8.2	1590	1540	26	320	842	34	20
	302441088523901	04/15/05	1300	--	8.1	8.2	1600	1660	--	347	903	1650	47.7
87	302815088590301	04/09/98	751	10	9.3	9.1	295	295	26	5.4	194	30	4
	302815088590301	04/17/02	751	5	9.3	9.2	298	307	--	5.5	191	8	3
88	302638088555301	10/14/97	1060	20	8.6	8.8	1030	1020	28.5	160	582	170	28
89	302611088572201	04/20/00	900	<5	7.7	9.1	328	325	27	7.9	200	3	7
	302611088572201	04/29/04	900	10	9	9	328	333	27	7.7	199	<2	7
90	305403088593401	05/03/04	950	9	9	9.1	353	366	28.5	14	215	5	5
91	301830089173701	04/19/00	966	5	8.8	8.8	525	529	27	32	318	9	7
	301830089173701	04/27/04	966	10	8.7	8.8	516	533	27.5	31	317	5	7
92	301832089171301	04/19/00	982	10	8.8	8.8	560	566	27.5	36	341	7	7
	301832089171301	04/27/04	982	10	9	8.9	552	585	24.5	36	340	42	12
93	301917089153101	04/23/97	858	10	8.9	8.9	642	574	27	48	376	--	--
	301917089153101	04/12/01	858	20	9	8.9	640	621	27	46	380	<2	10
	301917089153101	04/14/05	858	30	8.6	8.9	594	626	27.4	47	369	<6	11.5
94	302020089110001	04/19/00	873	5	7.4	7.9	274	278	25.5	2.7	190	229	250
	302020089110001	04/27/04	873	10	7.4	8.1	254	288	25.5	2.9	194	112	242
95	302139089084401	04/19/00	862	5	7	8.4	245	247	26	3.1	175	11	42
Hattiesburg Aquifer													
96	303545089071002	04/18/02	1140	<5	--	5.1	26	30	--	4.9	20	3	3
97	303806089080301	04/23/97	1412	10	8.8	8.7	254	246	30	2.1	156	--	--
	303806089080301	04/09/01	1412	<5	8.2	8.7	250	245	30	2.0	162	6	7
	303806089080301	04/11/05	1412	8	8.8	8.7	231	257	--	1.9	164	6	7.5
98	303410089052801	10/30/96	1414	<5	9.2	9.2	463	458	30	5.1	286	9	3
	303410089052801	04/15/02	1414	5	--	9.1	467	482	29.5	5.3	293	7	8
99	302308089183101	04/23/97	1775	10	8.6	8.8	591	583	33	84	328	--	--
	302308089183101	04/11/01	1775	5	8.8	8.8	593	584	32	84	341	6	22
	302308089183101	04/14/05	1775	12	8.6	8.6	591	635	--	93	332	11	24.9
100	302812088592101	04/24/97	1472	10	8.6	8.7	1270	1170	--	230	704	--	--
	302812088592101	04/12/01	1472	20	8.8	8.6	1250	1200	23	220	700	6	24
	302812088592101	04/13/05	1472	30	8.6	8.7	1220	1260	--	219	679	9	23

16 Quality of Water in Selected Wells, Harrison County, Mississippi, 1997-2005

Appendix I. Water quality data for selected wells sampled from 1997 to 2005, Harrison County, Mississippi--Continued

Well reference number (fig. 1)	Station number	Sample date	Well depth (feet below LSD)	Color, (Pt-Co units)	pH, field	pH, lab	Specific conductance, lab (µS/cm)	Specific conductance, field (µS/cm)	Temperature, water (deg C)	Chloride, (mg/L)	Total dissolved solids (mg/L)	Iron (µg/L)	Manganese (µg/L)
101	302204089102701	04/22/97	1640	20	8.8	8.9	408	390	--	25	236	--	--
	302204089102701	04/10/01	1640	5	8.9	8.9	400	391	32	23	246	11	16
	302204089102701	04/12/05	1640	10	8.8	8.8	374	406	--	24	234	18	18.2
102	302139089121001	04/07/98	1860	5	--	8.7	631	623	--	95	348	7	26
	302139089121001	04/16/02	1860	<5	8.5	8.7	622	647	--	93	356	4	24
103	302132089084901	04/07/98	1670	10	8.8	8.9	372	372	32	16	234	9	12
	302132089084901	04/19/00	1670	5	8.7	8.8	371	380	29	16	230	6	11
	302132089084901	04/27/04	1670	10	8.8	8.7	390	406	31	21	234	3	12
Catahoula Aquifer													
104	302447089165201	04/23/97	2413	20	8.7	8.8	595	581	--	76	328	--	--
	302447089165201	04/11/01	2413	10	8.7	8.7	593	574	26	75	346	26	30

Appendix II. Quality assurance (QA) data for selected wells sampled in 2005, Harrison County, Mississippi

[LSD, Land Surface Datum; Pt-Co, Platinum-Cobalt; uS/cm, Microsiemens per centimeter at 25 deg Celcius; mg/L, Milligrams per Liter; ug/L, Micrograms per Liter; --, indicates no data available; E, estimated; <, less than]

Well reference number (fig. 1)	Station number	QA sample type	Sample date	Well depth (feet below LSD)	pH, field	pH, lab	Specific conductance, lab (µS/cm)	Specific conductance, field (µS/cm)	Water temperature, (deg C)	Chloride (mg/L)	Total dissolved solids (mg/L)	Iron (µg/L)	Manganese (µg/L)
79	302304089020301	Replicate	04/12/05	900	--	8.6	259	--	--	3.51	182	E5	8.4
83	302701088593301	Field equipment blank	04/13/05	805	--	E7	3	--	--	<0.2	<10	<6	<0.6
99	302308089183101	Replicate	04/14/05	1775	--	8.7	595	--	--	93.1	347	11	25.2

