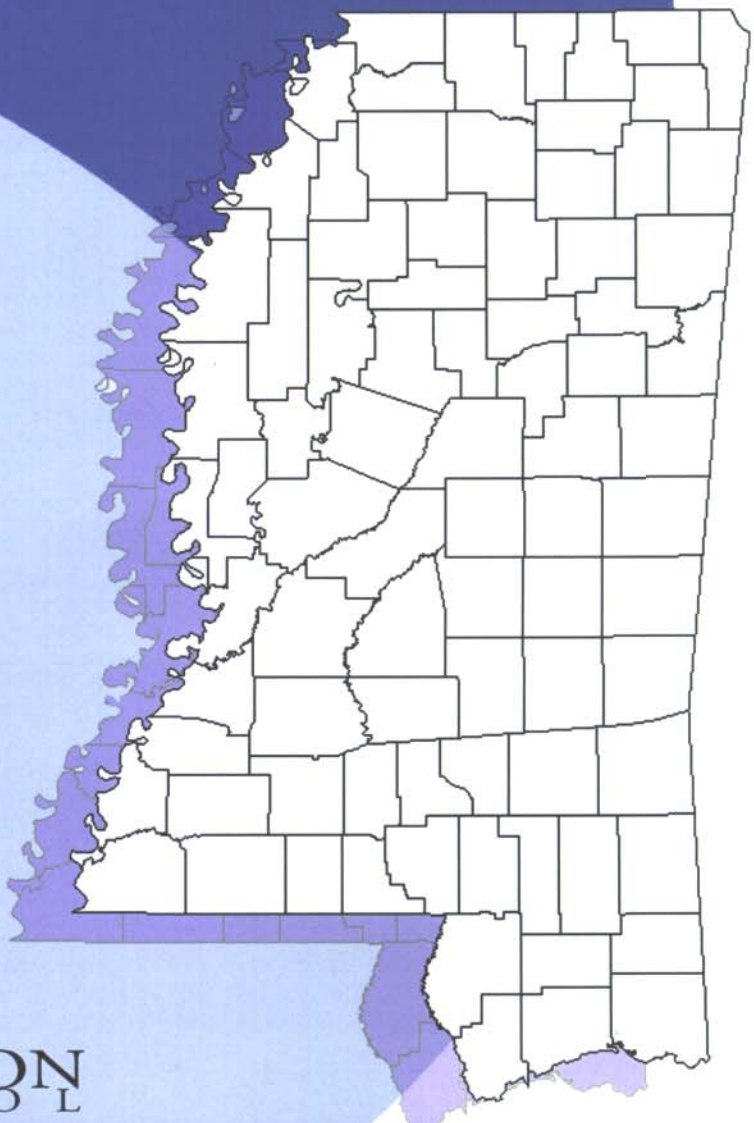
Mississippi Department of ENVIRONMENTAL QUALITY

For Period
1989 - December 31, 2003

Mississippi Agricultural Chemical Groundwater Monitoring Program



Office of POLLUTION CONTROL

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MDEQ strives to preserve and protect Mississippi's air, land, and water through fair and responsible regulation.

MISSISSIPPI AGRICULTURAL CHEMICAL

GROUNDWATER MONITORING PROGRAM

SUMMARY AND RESULTS

MARCH 1, 1989 THROUGH DECEMBER 31, 2003

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF POLLUTION CONTROL

EXECUTIVE SUMMARY

In order to determine the potential impact of agricultural chemicals on groundwater, Mississippi Senate Bill 2778 was passed and became effective July 1, 1987. As a result of this legislation, the Mississippi Department of Environmental Quality (MDEQ) was assigned the responsibilties of establishing groundwater standards and monitoring groundwater for agricultural chemicals and other pollutants. The MDEQ established the Agricultural Chemical Groundwater Monitoring (AgChem) Program and initiated the collection of groundwater samples in March, 1989. Funding for this program was provided through pesticide registration fees deposited in a special account to be shared by MDEQ and the Mississippi Department of Agriculture and Commerce (MDAC). Distribution of these funds to the AgChem Program and administration of pesticide related issues are under the auspices of MDAC.

Initially, sampling was conducted on shallow drinking water wells located in areas of highest pesticide usage before expanding into other regions of the state. Later, sampling was expanded to include other types of wells such as irrigation and fish culture wells in the highly agriculturalized Mississippi Delta. Through December 31, 2003, a total of 1085 wells have been sampled throughout the state. Of this total, 614 have been drinking water wells with all 82 counties of the state being represented. Samples from each of these drinking water wells have been analyzed for more than 100 pesticides and metabolites; 45 volatile organic compounds; and 30 inorganic compounds including minerals, residues, nutrients, and metals. In addition to these drinking water wells, a total of 471 irrigation and fish culture wells have been sampled in 17 counties of the Mississippi Delta. These irrigation and fish culture wells were analyzed for pesticides as in the drinking water wells, but only chloride and nitrate analyses were conducted in addition to the pesticides.

Generally, the results appear to indicate that the overall quality of Mississippi's groundwater supply is relatively unaffected by agricultural activities. Of the 1085 wells sampled, 1044 of them (96%) had no detectable concentrations of agricultural chemicals. Furthermore, of the 41 wells with detects, only four were found to contain concentrations exceeding safe levels (Maximum Contaminant Levels or MCL's) established for drinking water by the U.S. Environmental Protection Agency (EPA). Only two of these four wells consistently remained above the MCL's. An investigation of one of these two well sites indicated that the contamination resulted from improper storage of chemicals near the wellhead rather than from general agricultural practices. After clean-up of the area around the well, the levels have gradually declined with no pesticides detected in the last resample. Investigations at the second well site indicate contamination resulted from treatment for termites near the wellhead by the homeowner. Detected levels of pesticides at this site also continued to decline, with the latest analyses indicating all compounds within current MCL's.

Of the approximately 30 inorganic constituents analyzed for in the samples, total nitrates are most closely associated with agricultural practices. Only 9 of the 1085 wells sampled (0.8%) exceeded the MCL for total nitrates. Resampling has indicated that five of the 9 wells are presently within allowable limits.

Other chemicals not normally associated with agriculture were detected in a higher percentage of the wells. The concentrations detected, as with the pesticides, were generally found to be considerably lower than the safe levels established by EPA for drinking water.

Concurrent with the initiation of the AgChem Program, MDEQ in cooperation with the Mississippi Department of Agriculture & Commerce and Mississippi Cooperative Extension Service has actively participated in the Mississippi Pesticide Container Recycling Program. This program was established in order to provide a means for farmers to deliver their empty plastic pesticide containers to a central location where they are processed and eventually recycled. The program began in 1989 as a pilot project in one county, and in this first year approximately 24,000 pounds of plastic containers were collected. Since that time, the program has grown to include almost half of the state's 82 counties, with a total of more than 7,000,000 pounds being recycled through December 31, 2003.

PREFACE

This publication has been prepared by the Mississippi Agricultural Chemical Groundwater Monitoring Program which is administered by the Mississippi Department of Environmental Quality's Office of Pollution Control. The stated objectives of this report include the following:

(1) To briefly discuss the Agricultural Chemical Groundwater Monitoring Program and outline program activities for the period of March 1, 1989, through December 31, 2003.

(2) To summarize the results of groundwater sampling during this same period.

ACKNOWLEDGMENTS

The Department of Environmental Quality wishes to thank the farmers and other citizens of Mississippi for their participation in the Agricultural Chemical Groundwater Monitoring Program by allowing their wells to be sampled. A special thanks to the county extension agents across the state and the staff of the Mississippi Cooperative Extension Service for their assistance in locating wells, collection of samples and promotion of the monitoring program.

In addition, the staff of the AgChem Program acknowledges the contribution of the following cooperating Federal, State, and local agencies:

- Delta Council
- Mississippi Department of Agriculture and Commerce, Bureau of Plant Industry
- Mississippi Department of Environmental Quality, Office of Land & Water Resources
- Mississippi Farm Bureau Federation
- Mississippi State Chemical Laboratory
- Yazoo Mississippi Delta Joint Water Management District

DISCLAIMER

The mention of commercial products, their source or their use in connection with material reported herein should not be construed as either an actual or implied endorsement of such product. Also, any mention of these products as "contaminants" or similar descriptive wording should not be interpreted in any way as criticism of the products and/or their use.

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INTRODUCTION

Over ninety percent of the population in Mississippi relies on groundwater for drinking water supply. Because of this dependence, there have been growing concerns that agricultural chemicals may be impacting and degrading the valuable groundwater resources in the state. Accurate evaluations of these chemicals and their possible impact on the environment have not been possible in the past, however, due to the limited amount of available water quality data.

In 1981, a limited ambient groundwater quality study was conducted by the Mississippi Department of Environmental Quality (MDEQ). The analyses of 59 samples from water wells found no pesticides at detectable levels.

A similar study was conducted in 1983 by the Mississippi State Chemical Laboratory. In this study, 143 shallow water wells were sampled in the heavily agriculturalized Mississippi Delta. Each sample was analyzed for 32 compounds representing five classes of pesticides. Although 18 of the 32 pesticides were detected in these samples, all were determined to be at concentrations below drinking water standards.

In order to better determine the potential impact of agricultural chemicals on groundwater, a proposal to develop an Agricultural Chemical Groundwater Protection Program was formulated in 1986. This proposal was initiated by several organizations including the Delta Council, Mississippi Farm Bureau, National Agricultural Chemicals Association and others. As a result of their efforts, Mississippi Senate Bill 2778 was passed and became effective July 1, 1987. In summary, this legislation required the MDEQ, formerly known as the Department of Natural Resources, to establish state groundwater standards and to monitor groundwater quality in the state. The legislation also allowed the Mississippi Department of Agriculture and Commerce to increase registration fees on pesticides and fertilizers to defray the cost of administering the program and to take corrective action in the event it was determined that agricultural chemicals are impacting groundwater resources in the state.

METHODOLOGY

As a result of Mississippi Senate Bill 2778, the Mississippi Department of Environmental Quality (MDEQ) was empowered to monitor the groundwater resources of the state. To carry out this mandate, the MDEQ established the Agricultural Chemical Groundwater Monitoring (AgChem) Program.

Since there are approximately 60,000 registered pesticide formulations containing one or more of some 700 different active ingredients, it is prohibitively expensive to analyze for all these compounds. The strategy decided upon by the MDEQ to minimize this dilemma was to select a target list of approximately 170 pesticides, metabolites, volatile organic compounds (VOC's), metals, minerals and other inorganics. This approach was patterned after criteria established during the Environmental Protection Agency (EPA) National Pesticide Survey. Also targeted were some chemicals that are not necessarily associated with agricultural practices but were of specific interest to the MDEQ.

Targeted constituents were chosen based on the following general criteria:

- Physical and chemical properties of the pesticide
- Quantity used in Mississippi
- Pesticides sampled in the EPA's National Pesticide Survey
- Data from federal, state and local agencies.

It was decided that the following guidelines would be used in selection of wells for sampling:

- Priority would be given to drinking water wells currently in use.
- Although wells less than 150 feet in depth were preferable, deeper wells would be considered if shallow wells were unavailable.
- Wells would be located in agricultural areas if possible.
- Initial phase of groundwater monitoring would consist of sampling a minimum of three wells in each of the 82 counties in the state. This number was allowed to fluctuate as special circumstances dictated.

Areas of the state were then prioritized to determine where the groundwater monitoring should begin. In establishing the order of priority for the various regions of Mississippi, the following factors were considered:

- Nature and depth of surface soils, sub-soils, and confining layers for aquifers.
- Soil vulnerability data
- Depth and character of groundwater aquifers
- Land use patterns
- Historical agricultural chemical usage data
- Analysis of most current pesticide use data

After analyzing available data, it was determined that sampling should be initiated in the areas of highest pesticide usage. The data for total agricultural pesticide use by county in Mississippi for 1982 were obtained and used to distinguish between high, medium and low usage areas. Of the 82 counties in Mississippi, fifteen were designated as high use areas, nineteen were shown to be medium use areas and the remaining 48 counties were considered to be low use areas.

Statewide sampling for the AgChem Program was initiated in March, 1989. Through December 31, 2003, samples have been collected and analyzed on 614 drinking water wells representing all 82 counties of the state. In addition, a total of 471 fish culture and irrigation wells have been sampled in seventeen counties of the Mississippi Delta. These samples were collected as part of an expanded and continuing AgChem Program which focuses on the shallow Mississippi River alluvial aquifer in the Delta, the region of highest pesticide usage.

Each AgChem sampling site is precisely located to within 2 to 5 meters using a mapping-grade Global Positioning System (GPS) receiver. The positional data and analytical data are input into a Geographic Information System (GIS) which allows a user to visualize, in a map format, the spatial distribution of any detects. This same system allows the user to generate individual county or statewide maps and analytical data reports on all sampled wells.

Figure 1. Agricultural Land Use Map of Mississippi

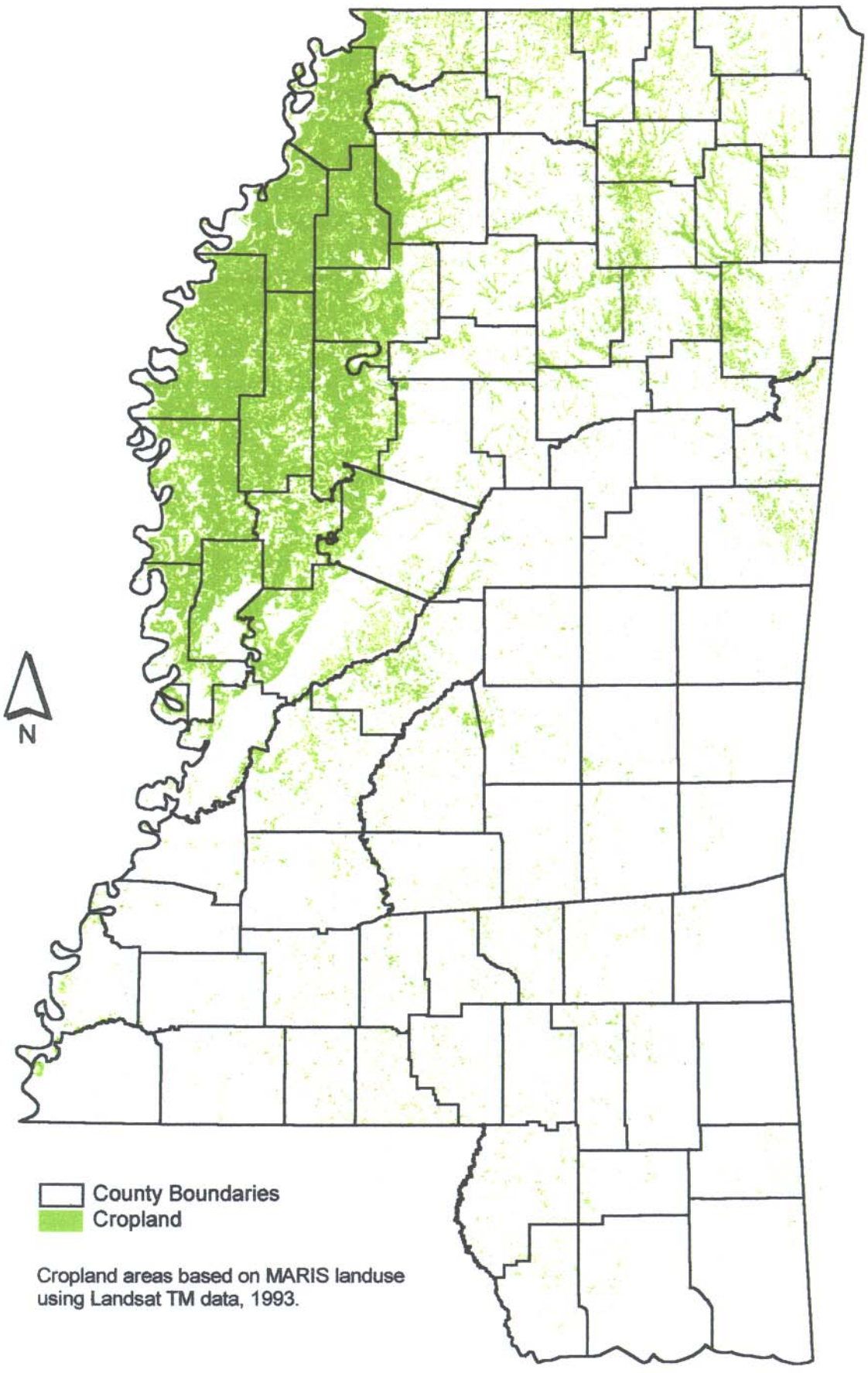
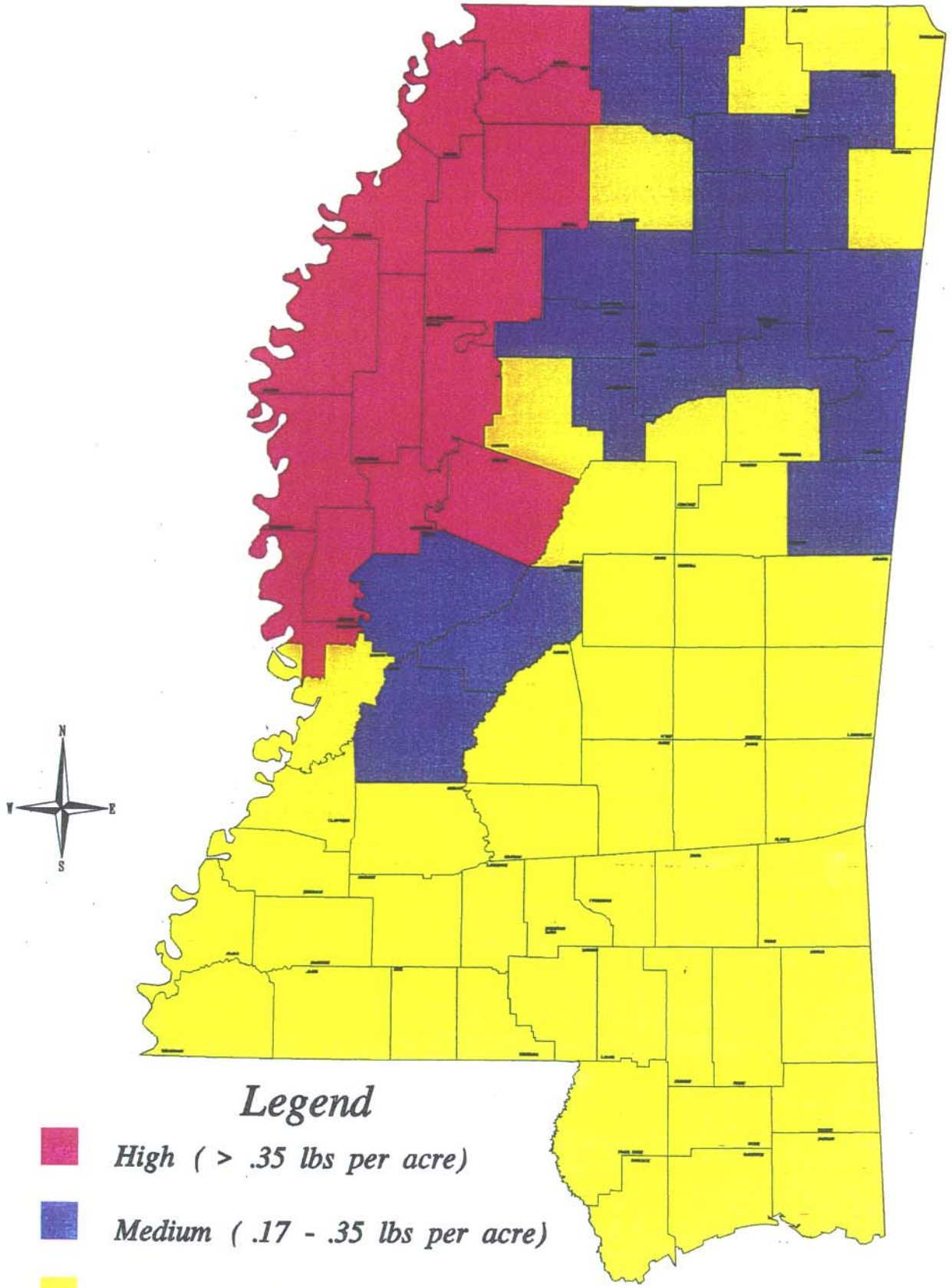


FIGURE 2. Estimated Pesticide use in Mississippi



SOURCE: Resources for the Future and 1982 Agriculture Census

SUMMARY AND PRESENTATION OF RESULTS

SUMMARY

This report presents the results of a statewide monitoring program where groundwater samples were analyzed for agricultural pesticide residues, other organic constituents, and inorganic compounds between March 1, 1989, and December 31, 2003. Most of the results were obtained during single sampling events and do not reflect repeated resampling of wells. However, resampling was conducted on wells where initial results indicated the presence of contaminants that exceeded allowable limits or in certain cases where resampling could provide additional information.

SECTION I-DRINKING WATER WELLS SUMMARY

Included in the reported results are data, including multiple resampling, of 614 drinking water wells/springs located in all 82 counties of the state. Several of the samples were gathered from flowing springs or artesian sources. The remainder of the groundwater samples were collected from wells with a wide range of depths including some in excess of 350 feet. Approximately 60% of the samples were obtained from wells with depths less than 150 feet.

Sampling Depth	Number of Samples
Springs/Artesian	21
0 - 50 feet	62
51 - 100 feet	172
101 - 150 feet	113
151 - 200 feet	65
201 - 350 feet	67
> 350 feet	67
Unknown	47

The samples have been analyzed for approximately 100 pesticides and metabolites; 45 volatile organic compounds (VOC's); and 30 inorganic compounds including minerals, residues, nutrients and metals (see Table 1). A total of 43 different pesticides and other organic compounds were detected in 137 of the 614 wells sampled. The wells showing detections were located in 54 of the 82 counties in Mississippi.

Of the 43 organic compounds detected in this survey, a total of eleven constituents initially exceeded Maximum Contaminant Levels (MCL's). Multiple resampling has been conducted over a period of years, and currently show no contaminants at levels above drinking water standards in any of the impacted wells. Pentachlorophenol was the most commonly detected compound, being indicated at extremely low levels in 99 (16%) of the 614 sampled wells with none approaching the current MCL.

Regarding inorganic compounds, nitrates are the constituents most closely associated with agricultural practices. Six hundred and six of the 614 wells sampled were analyzed for total nitrate content. Nine of the sampled wells exceeded the established MCL of 10 ppm for total nitrates. Resampling indicated that four of the wells remain at levels exceeding current drinking water standards.

SECTION II-IRRIGATION AND FISH CULTURE WELLS SUMMARY

In addition to these drinking water wells, samples from 471 irrigation and fish culture wells have been collected in seventeen counties of the Mississippi Delta. These samples were analyzed for approximately 100 pesticides and metabolites, chlorides, and total nitrates. In this area of the state with the highest pesticide usage, eight organic compounds have been detected at extremely low levels in 28 of the sampled wells screened in the shallow Mississippi River Alluvial Aquifer. As with the drinking water wells, Pentachlorophenol was the most common contaminant, being detected in 16 of the 28 effected wells. Even though detected levels were extremely low, eight of the 16 wells containing Pentachlorophenol were randomly resampled approximately 2 months after the original sample. Interestingly, no Pentachlorophenol was detected in any of the resampled wells.

Other than Pentachlorophenol, seven pesticide constituents were detected in fourteen of the 471 wells sampled in the survey. All detected compounds were far below established drinking water standards or MCL's. Total chlorides and nitrate/nitrite levels in all sampled irrigation and fish culture wells were extremely low, with the maximum total nitrate level being 0.93 ppm.

Although well depths have not been recorded, irrigation and fish culture wells in this shallow alluvial aquifer typically range from 80-125 feet in depth Thus, 100% of the wells in this study would be less than 150 feet deep.

PENTACHLOROPHENOL AND VOLATILE ORGANICS SUMMARY

As discussed above in Sections I and II, Pentachlorophenol was the most frequently detected compound, being indicated in 99 of the 614 drinking water wells and in 16 of the 471 irrigation wells sampled. For over 25 years Pentachlorophenol has been restricted to wood uses only (49 FR 28666 July 13, 1984; 51 FR 1334 January 10, 1986), and in this report is not considered as an agricultural chemical. However, this arguable exclusion does not lessen the importance of its presence in groundwater, and these detections are of great interest to the Mississippi Department of Environmental Quality. At the same time, it should also be noted that the lower level of detection established for Pentachlorophenol in this report is 100 times lower than the Minimum Reporting Limit used in the U.S. EPA National Pesticide Survey (NPS). This NPS Minimum Reporting Limit is 0.100 ppb, and if these guidelines were followed, only one of the sampled wells in this study would have been reported to contain Pentachlorophenol.

Excluding Pentachlorophenol along with volatile organic compounds (VOC's) not associated with agricultural practices results in a total of 41 wells containing 31 pesticides in 25 counties. These 41 wells represent just 4.0% of the 1085 total wells sampled. As stated earlier, none of the sampled wells presently contains any agricultural chemical at concentrations above existing MCL's.

5. CARBOFURAN PHENOL

CARBOFURAN PHENOL is a breakdown product of CARBOFURAN, an insecticide, nematicide and acaracide. It was detected in one well in Attala County at a level of 5.6 ppb. This constituent has an MCL of 40 ppb.

6. CHLORDANE (ALPHA)

Although all uses of this insecticide have been canceled in the U.S., detections of this constituent were discovered in one of the sampled wells in Lowndes County. At a reported concentration of 0.130 ppb, the analyzed groundwater was below the 2 ppb established MCL for this compound.

7. CHLORDANE (GAMMA)

Uses of this insecticide in the U.S. have also been canceled. However, it was detected in the same well as ALPHA CHLORDANE mentioned above. The indicated level was 0.120 ppb; the MCL is 2 ppb.

8. CHLOROFORM (TRICHLOROMETHANE)

Primary uses of this volatile organic compound now include dyes, toothpaste, general fumigant, disinfectant, and is often a by-product of water treatment. This constituent was detected in eight wells located in five of the 82 counties. Indicated groundwater concentrations ranged from a minimum of 1 ppb to a maximum of 8 ppb which are far below the established 100 ppb MCL for this residue.

9. CHLOROMETHANE

This volatile organic compound (VOC) is primarily used as a solvent for paints, degreasers, etc. and is not classed as an agricultural chemical. Its presence was detected in only one of the sampled wells in Marshall County at a level of 7 ppb. The MCL of this compound is 3 ppb. Resamples analyzed from this well did not detect the presence of CHLOROMETHANE.

10. CHLORPYRIFOS

This insecticide is used on cotton, corn, soybeans, pecans, ornamentals, lawns, other field, fruit and vegetable crops along with general use against termites by pest control companies. This compound was detected in three wells located in three counties. Concentration levels ranged from a minimum of 0.020 ppb to a maximum of 0.220 ppb; the MCL for this compound is 20 ppb.

11. 2,4-D

Primarily used in wheat, corn, rice, and pasture land, this herbicide was detected in three wells in two counties. The detected concentrations ranged from 0.063 to 0.220 ppb which do not approach the present 70 ppb MCL for this residue.

12. DIAZINON

This insecticide commonly used on a wide variety of insects was detected in one well at a trace level in Clarke County. The MCL for DIAZINON is currently set at 0.6 ppb.

13. DIBROMOCHLOROMETHANE

This volatile organic compound is not considered an agricultural chemical, and was detected at a level of 1.6 ppb in one well in Tate County. At the present time, there is no established MCL for this constituent.

14. DICAMBA

Used primarily on corn and non-crop areas as a herbicide, DICAMBA was detected in only one of the sampled wells in Yazoo County. The detected level was 0.032 ppb; the MCL for this constituent is 200 ppb.

15. 1,1-DICHLOROETHANE

This volatile organic compound (VOC) has been used on a limited basis as a grain fumigant, but is primarily used in solvents and paint removers. It was detected at a level of 7 ppb in one well in Marshall County, and at the present time there is no established MCL for this compound.

16. 1,2-DICHLOROETHANE

This VOC is used in solvents and degreasers, but has also seen limited use as a grain fumigant. It was detected at a level of 3 ppb in one well in Monroe County, and in one well at 1 ppb in Tate County. The EPA has set the present MCL for this compound at 5 ppb.

17. 1,1-DICHLOROETHENE - (DCE)

DCE is a chemical intermediate used in the manufacture of polymers such as PVC and is not considered to be an agricultural chemical. A trace level of this VOC was detected in one well in Carroll County. The existing MCL for this compound has been established at 7 ppb.

18. CIS-1,2-DICHLOROETHENE

This compound, a captive intermediate in the manufacture of other chlorinated solvents, was detected in six wells in four different counties. The detected levels ranged from a trace level to a maximum of 2 ppb; the MCL for this compound is 70 ppb.

19. TRANS-1,2-DICHLOROETHENE

This VOC is also a captive intermediate in the manufacture of other chlorinated solvents. Concentrations of 1 ppb and 2 ppb were discovered in two wells sampled in Choctaw and Tunica counties. These detects correspond with two of the four wells containing CIS-1,2-DICHLOROETHENE as discussed above. With the existing MCL for this compound set at 100 ppb, the detections are not overly significant. Currently there are no active registered agricultural products that contain CIS-1,2-DICHLOROETHENE or TRANS-1,2-DICHLOROETHENE.

20. 4,4-DDD - (TDE)

This breakdown metabolite of the insecticide DDT was detected in one well at a level of 0.17 ppb in Leflore County. The MCL for this compound is presently 0.10 ppb, and resamples of this well were conducted over a period of years. These indicated a decline to 0.080 ppb in the latest sample.

21. 4,4-DDE

This compound, also a breakdown metabolite of the insecticide DDT, was detected in one of the wells sampled during the monitoring survey. The detected level of 4,4-DDE in this well in Leflore County was 0.054 ppb; the present MCL for this constituent has been established at 0.10 ppb.

22. 4,4-DDT

This insecticide with widespread usage until suspended in the 1970's was detected in a single well. This well was the same one containing 4,4-DDD - (TDE) discussed above. Although the detected level of 0.060 ppb was below the MCL of 0.10 ppb, two resamples of this well were conducted. The detected level in the first resample was 0.050 ppb, 0.020 ppb. in the second resample with no DDT detected in the latest resample.

23. DIELDRIN

Even though all U.S. uses of this insecticide have been canceled, six wells in five counties showed detections ranging from a minimum of 0.010 ppb to a maximum of 0.89 ppb. Although there is no current Drinking Water MCL for this compound, resampling was conducted on the one well in Monroe County with an initial level of 0.89 ppb due to the added presence of HEPTACHLOR EPOXIDE. The indicated level of DIELDRIN has gradually decreased to 0.38 ppb, but continued resampling is planned.

24. DINOSEB

DINOSEB is a general contact herbicide that was applied in the past before its use in was canceled in the U.S. This compound was detected in three wells located in two counties, with one of the wells slightly exceeding the current MCL of 7.0 ppb. Resampling of this well in Hancock County on eight other occasions have all indicated declining levels, with the latest analysis indicating none detected.

25. HCH GAMMA (BHC)

Used primarily on rice, vegetables, grain, fruit & nut trees, non-crop areas and seed treatment, this insecticide was detected in two wells. One well in Marion County was indicated at a level of 0.055 ppb, and one well in Amite County was detected at 0.020. The present MCL for this compound is 0.20 ppb.

26. HEPTACHLOR EPOXIDE

All U.S. uses for this compound have been canceled, but the monitoring survey discovered this insecticide in two wells in two counties of the state. A level of 0.12 ppb was indicated in one well in Lowndes County, with the current MCL for this constituent being 0.20 ppb. However, a level of 0.63 ppb has been detected in one well in Monroe County. Resampling of this well on four other occasions has indicated a decline to 0.11 ppb which is below the current MCL. Investigations indicate the probable source of contamination to be from termite treatment near the wellhead by the homeowner, and resampling of this well will continue.

27. HEXACHLORO-1,3-BUTADIENE

This volatile organic compound (VOC) is not associated with agricultural practices and is used primarily as a solvent for rubber, a heat transfer liquid in transformers, and also in hydraulic fluids. Its presence was detected in one well in Claiborne County at an indicated level of 40 ppb. The Maximum Contaminant Level for this compound is presently 1 ppb. A resample of this well was conducted but did not detect the presence of this chemical.

28. METHYLENE CHLORIDE

This compound is primarily used as a solvent in laboratories, paints, degreasers, and cleaning fluids. The presence of METHYLENE CHLORIDE was indicated in 17 of the sampled wells in 10 different counties. Concentrations of residues in the groundwater ranged from a trace to 9 ppb. The one well that exceeded the established MCL of 5 ppb was resampled but METHYLENE CHLORIDE was not detected. Currently there are no active registered agricultural products that contain this chemical.

29. METOLACHLOR

This selective herbicide used primarily in corn, soybeans, cotton, and sorghum was found in one well in George County. The detected level was 4.15 ppb; the present MCL for this constituent is 70 ppb.

30. METRIBUZIN

Used primarily in soybeans, corn & non-crop areas, this herbicide was detected in two sampled wells in two counties. Detected levels were 0.12 and 0.62 ppb respectively, and the present allowable limit for this herbicide is 100 ppb.

31. METRIBUZIN DA

This degradate of the herbicide METRIBUZIN was detected at 0.4 ppb in the one well containing METRIBUZIN and several other pesticides in Hancock County. The allowable limit for this compound is 100 ppb. Resampling of this well has detected no METRIBUZIN DA in the last two samples.

32. METRIBUZIN DADK

METRIBUZIN DADK, a breakdown metabolite of the herbicide METRIBUZIN, was detected in a trace amount in one well located in George County. The EPA has set the MCL for this compound at 100 ppb also.

33. METRIBUZIN DK

This compound is also a breakdown metabolite of the herbicide METRIBUZIN, and was detected in the same well in Hancock County as METRIBUZIN and METRIBUZIN DA above. This constituent was indicated at 1.3 ppb with the allowable limit presently being 100 ppb. This well has been resampled on eight occaisions, with no METRIBUZIN DK detected in the last two samples.

34. NAPHTHALENE

NAPHTHALENE is a volatile organic compound primarily used in the preparation of dyes, detergents and synthetic products. At one time it was used as an insecticide fumigant for clothes moths, but it is seldom used for this purpose now. This compound was detected in one well in Claiborne County at a level of 22 ppb which exceeded the established MCL of 20 ppb for this chemical. A resample of this well was conducted with no NAPHTHALENE detected.

35. PENTACHLOROPHENOL

Originally introduced as a wood preservative in 1936, PENTACHLOROPHENOL has also been used as a fungicide, herbicide, insecticide, defoliant, disinfectant, and algicide. Since 1984 however, it has been restricted to wood use only. PENTACHLOROPHENOL was detected in 99 of the wells sampled, and in 34 counties of the state. Residues in the groundwater ranged from a minimum of 0.001 ppb to a maximum of 0.470 ppb. These concentrations are much less than the MCL of 1 ppb set for this compound. Although the high percentage of wells apparently containing PENTACHLOROPHENOL should be noted, it should be emphasized that the lower level of detection established for this report is 100 times lower than the minimum reporting limit used in the U.S. EPA National Pesticide Survey.

36. PICLORAM

This herbicide has been used primarily for non-crop control of weeds, brush and woody plants, and in forestry. PICLORAM was reported in one well that was sampled in Kemper County at levels of 0.270 ppb. The MCL for this compound is 500 ppb.

37. TETRACHLOROETHENE

This VOC is used as a dry cleaning fluid, degreaser and solvent. Its presence was indicated in two wells both collected in the Marshall county. One of the wells showed only a trace of the constituent. However, the other well had a concentration level of 4 ppb which approaches the established MCL of 5 ppb for TETRACHLOROETHENE. Resampling of this well is continuing, with a level of 3.7 ppb indicated in the latest analysis.

38. TOLUENE

The detection of TOLUENE was found in only one of the sampled wells in Sunflower County. The concentration detected in the well was 1 ppb which appears rather insignificant when compared to the MCL of 1000 ppb the EPA has set for this constituent. This compound is used as a gasoline additive and as a raw material in producing benzene and other organic solvents. Currently there are no active registered agricultural products containing TOLUENE.

39. TOXAPHENE

In the past, TOXAPHENE has been used as an agricultural insecticide, but all uses in the U.S. have been canceled. This constituent with an established MCL of 3.00 ppb was detected at a level of 2.40 ppb in one of the wells sampled. This groundwater sample was collected from the same well in Hancock County that also exhibited detections of ACIFLUORFEN, ALACHLOR, ATRAZINE, DINOSEB and METRIBUZIN as was mentioned previously in this report. The analyses of seven additional samples from this well did not indicate the presence of TOXAPHENE.

40. TRICHLOROFLUOROMETHANE (TRIFLUOROCHLOROMETHANE)

This VOC was detected in one well at a trace level in Desoto County; the EPA has issued a Health Advisory for this constituent at concentrations exceeding 2000 ppb. TRICHLOROFLUOROMETANE is used as a refrigerant, solvent, fire extinguisher and chemical intermediate and is not considered an agricultural chemical.

41. TRICHLOROETHENE

This VOC used primarily as a dry cleaning fluid, degreaser and solvent is not listed as an agricultural chemical. It was detected at a level of 1.0 ppb in one well in Marshall County, with the current MCL for this compound being 5.0 ppb.

42. VINYL CHLORIDE

This compound is primarily used in the manufacture of PVC, adhesives, etc. but is not used as an agricultural product. A trace level of VINYL CHLORIDE was detected in only one well in Claiborne County, and the current MCL for this constituent is 2 ppb. This well has been resampled with no Vinyl Chloride detected.

43. O-XYLENE

A single well in the survey indicated one detection in Holmes County of O-XYLENE at a level of 1 ppb which is far below the established MCL of 10,000 ppb. In Mississippi, this compound is used primarily as a solvent for paints, adhesives, and components in other household and industrial products.

44. NITRATES/NITRITES

In addition to pesticides and other organic compounds, nitrate/nitrite levels in groundwater are important indicators of other potential contamination problems, and are therefore of interest to the Mississippi Agricultural Groundwater Monitoring Program. As part of this program, samples from 606 wells in all 82 counties were analyzed for total nitrates (as nitrogen). Concentrations of these compounds ranged from minimums below the lower level of detection to a maximum of 47.8 ppm in one well. Of the groundwater samples analyzed from these wells, nine of them indicated levels of nitrates exceeding the MCL of 10 ppm. The detected levels from these nine wells varied from 10.1 ppm to a maximum of 47.8 ppm. Of these nine wells, seven were resampled. Groundwater analysis from five of the resampled wells fell within allowable limits, while the nitrate concentrations in the other two wells reconfirmed the original results.

SECTION II - IRRIGATION AND FISH CULTURE WELLS

The following chemicals were detected in one or more of the 471 irrigation and fish culture wells sampled in 17 counties of the Mississippi Delta:

1. BENTAZON

BENTAZON is a postemergence selective herbicide used for control of broadleaf weeds in many agricultural crops including soybeans, rice and sorghum. The presence of this compound was detected in seven wells found in three counties. The detected levels in these wells ranged from 0.31 ppb to 0.71 ppb which are below the established Maximum Contaminant Level (MCL) of 20 ppb for this compound.

2. BROMACIL

BROMACIL is used for general weed and brush control, primarily in non-crop areas. This herbicide was detected at a trace level in one well, with the MCL for this compound being 90 ppb.

3. CURACRON

This insecticide and acaracide used primarily on cotton was detected at extremely low levels in three wells in one county. At the time of sample collection however, it was noted that contamination of samples from an external source was suspected. Resamples of all 3 wells were obtained, with no CURACRON detected in any of the wells. Resampling of these wells will continue in order to verify results.

4. MALATHION

This insecticide used on various row crops, vegetables and ornamentals was detected in one well in Holmes County. The detected level of this compound was 0.050 ppb, and the established MCL for this constituent is 200.00 ppb.

5. METRIBUZIN

This herbicide used primarily in soybeans, corn and non-crop areas was detected in two of the wells sampled. The concentration levels in the wells ranged from a trace to 0.02 ppb. Although these levels are far below the MCL of 100 ppb, resampling of these two wells is planned.

6. METOLACHLOR

This selective herbicide was found at an indicated level of 3.10 ppb in one well in Carroll County. The present MCL for this compound is 70 ppb.

7. PENTACHLOROPHENOL

Only three of the seventeen counties sampled showed detections of PENTACHLOROPHENOL. Detection levels ranging from 0.01 to 0.03 ppb were indicated in 16 of the 471 wells sampled. The EPA has set the MCL for this constituent at 1 ppb. Random resampling of eight of the 16 impacted wells conducted approximately two months after the initial samples were collected indicated no detection of PENTACHLOROPHENOL in the resamples.

8. ZORIAL

ZORIAL is a preemergence selective herbicide used on a variety of crops including cotton, and was detected at a level of 0.21 ppb in one well. Additional samples were collected over a three year period, and the latest resample of this well did not detect the presence of this compound. At the present time, there is no established MCL for this pesticide.

9. NITRATE/NITRITE

In the majority of the sampled wells, no Nitrate/Nitrite were detected. In those wells with detects, levels were extremely low with a maximum indicated level of 0.93 PPM. The present MCL for total nitrates (as nitrogen) is 10 ppm.

AgChem Sampling Sites

Scale 1:1520666

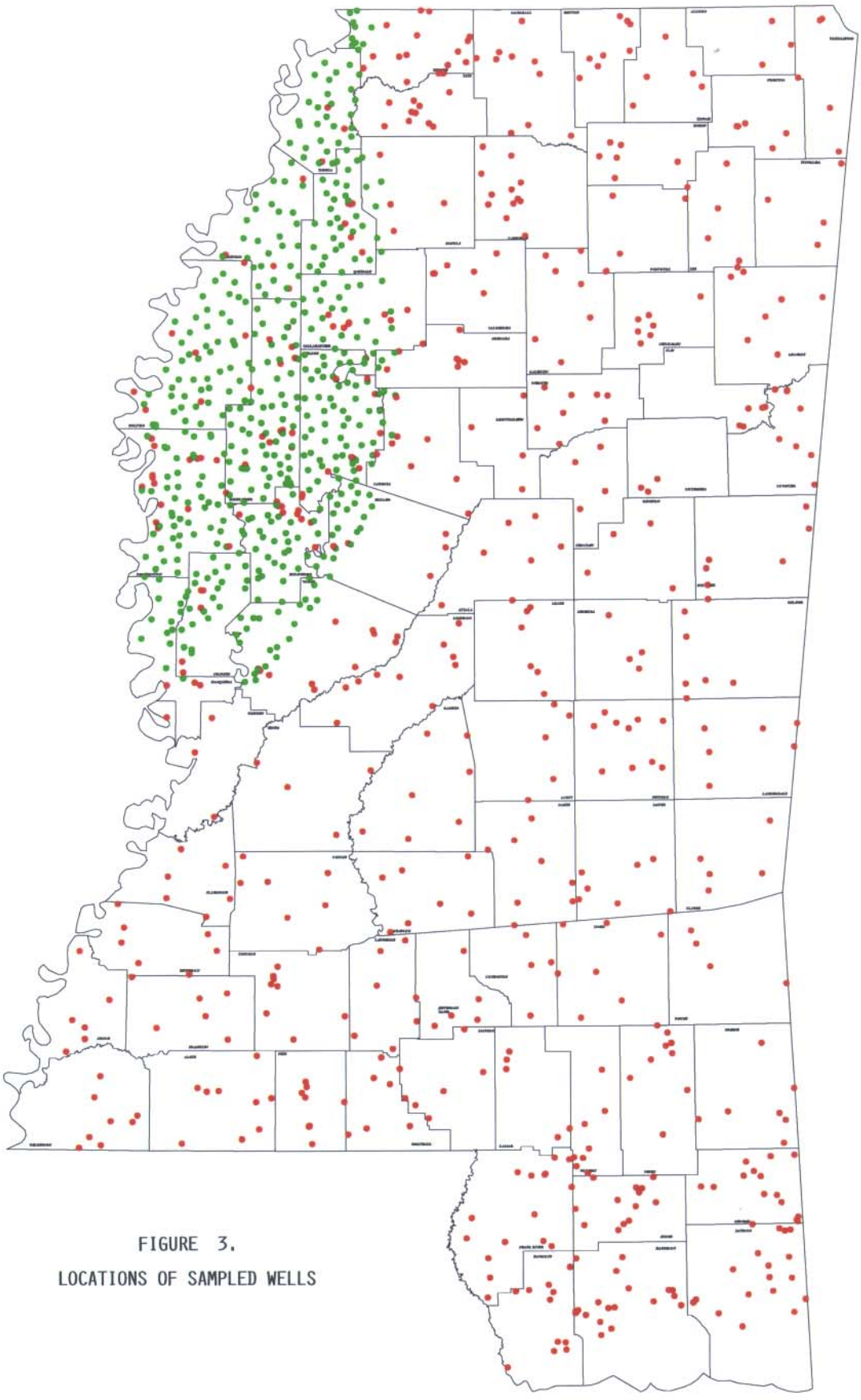


FIGURE 3.

LOCATIONS OF SAMPLED WELLS

- Drinking Water Well
- Irrigation/Fish Culture Well

AgChem Sampling Sites

Scale 1:1520666

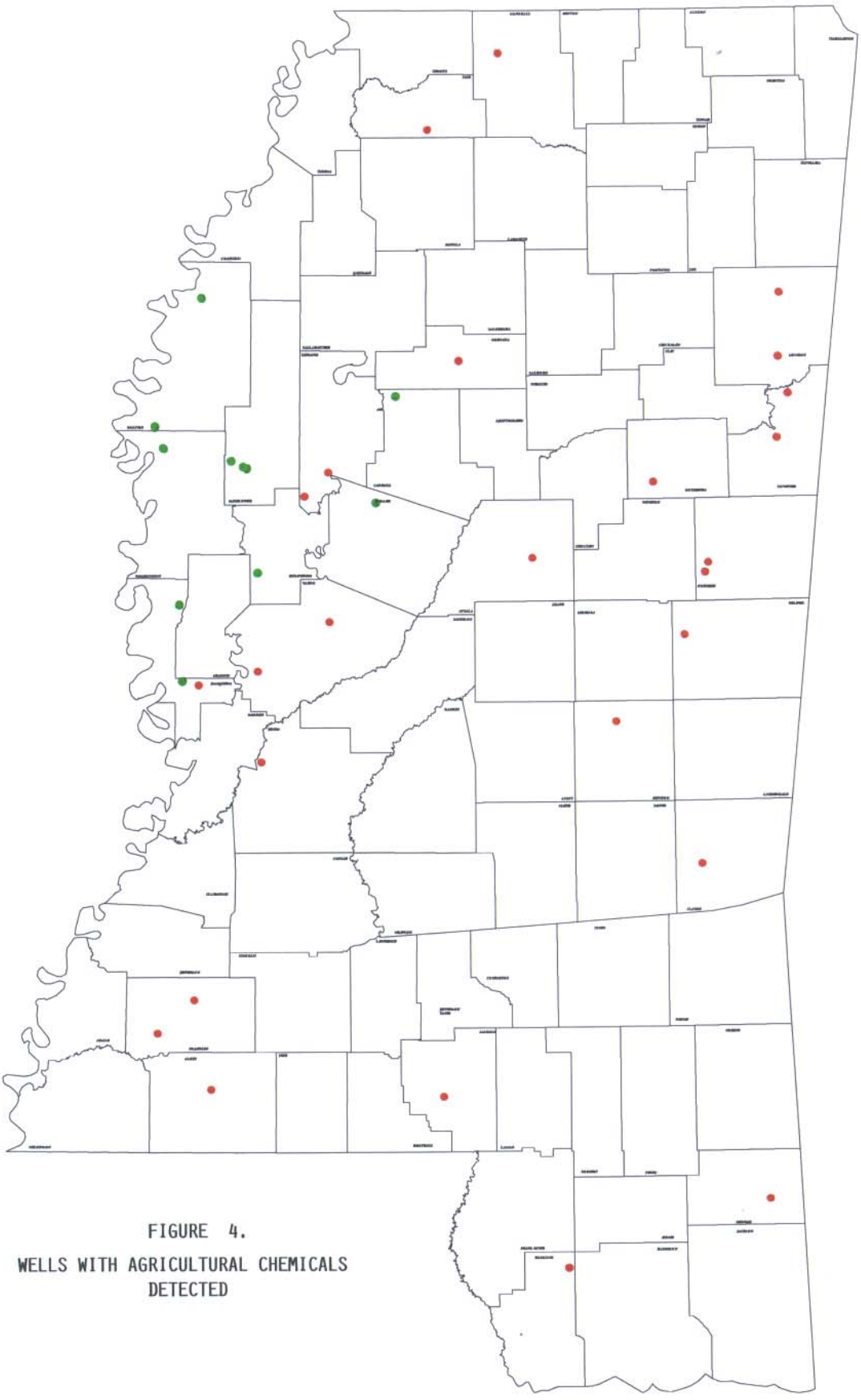


FIGURE 4.

WELLS WITH AGRICULTURAL CHEMICALS DETECTED

● Drinking Water Well
● Irrigation/Fish Culture Well

040206_095826

AgChem Sampling Sites

Scale 1:1520666

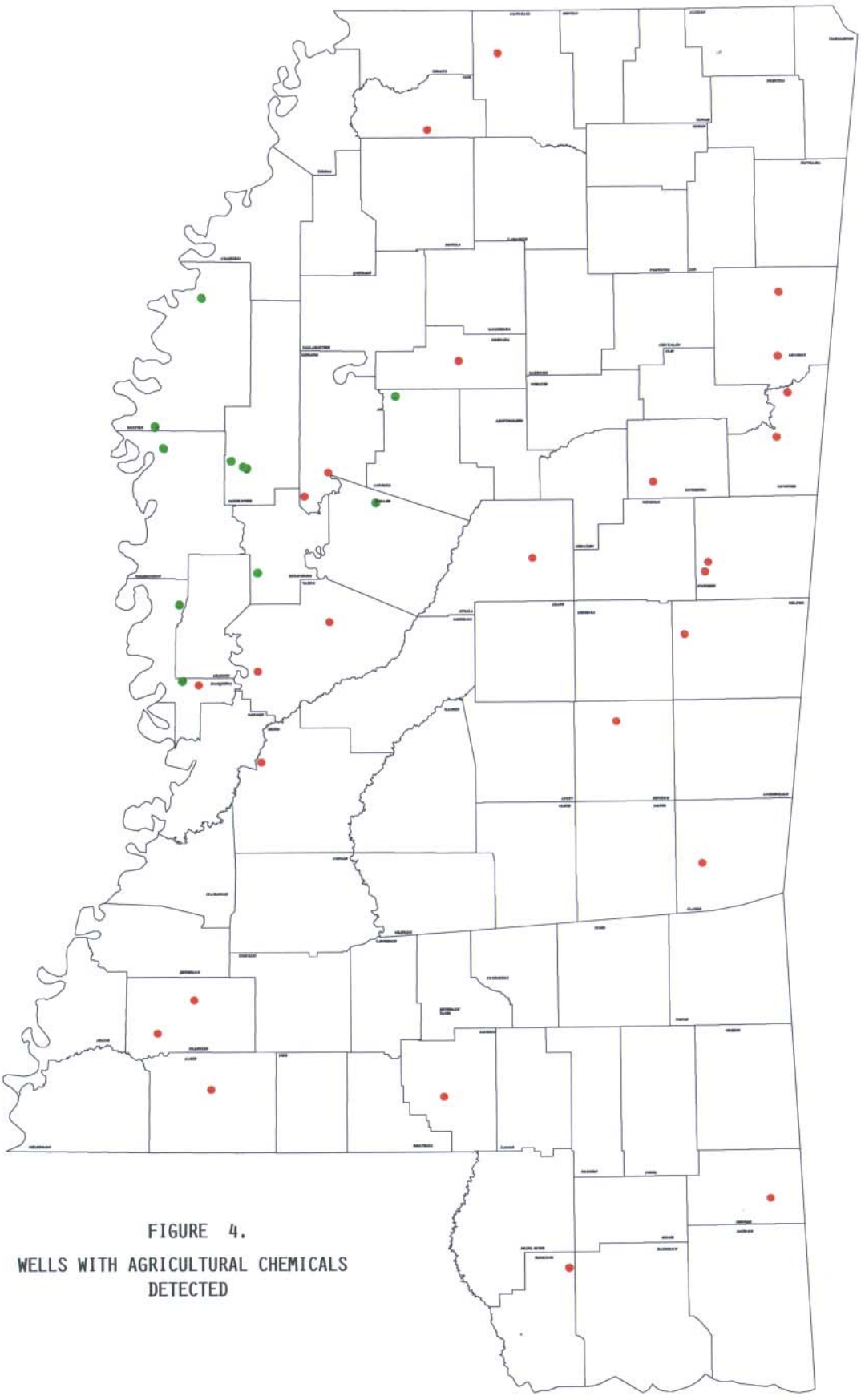


FIGURE 4.

WELLS WITH AGRICULTURAL CHEMICALS DETECTED

● Drinking Water Well
● Irrigation/Fish Culture Well

040206_095826

CONCLUSION

Based on results to date, there is no evidence that agricultural chemicals are significantly impacting the quality of groundwater in Mississippi. A supplementary investigation of the well in Hancock County that indicated levels of ACIFLUORFEN, ALACHLOR, ATRAZINE, DINOSEB, METRIBUZIN, METRIBUZIN METABOLITES and TOXAPHENE discovered that the contamination resulted from improper storage of chemicals near the wellhead rather than from general agricultural practices. After clean-up of the area around the well, detected levels of all pesticides have gradually declined to where none were detected in the latest resamples. The one well in Monroe County with detected levels of DIELDRIN and HEPTACHLOR EPOXIDE which exceeded allowable limits has been resampled on four occasions. Detected levels have declined, and are presently within federal drinking water standards. Investigations indicate contamination most likely occurred as the homeowner treated areas near the wellhead for termites. Resampling of numerous other wells throughout the state has discovered that compounds initially detected are no longer present or are now within allowable limits.

Many of the other affected wells only showed detections of volatile organic compounds (VOC's). While these are of interest and are important to groundwater protection programs operating in the state, they are not associated with agriculture in Mississippi.

The Mississippi Department of Environmental Quality will continue its efforts to determine if the agricultural use of pesticides and fertilizers may be adversely affecting our groundwater quality. These efforts will focus on the continuation of groundwater monitoring throughout the state; compiling additional data bases; and implementing new programs for site specific studies in areas of highest pesticide usage. In addition, participation will continue in other activities related to the prevention of contamination and protection of the groundwater resources of Mississippi.

APPENDICES

TABLE 1. LABORATORY ANALYSES CONDUCTED

TABLE 2. SUMMARY OF PESTICIDES AND OTHER ORGANIC COMPOUNDS DETECTED

TABLE 3. SUMMARY OF RESULTS ON KEY INORGANIC CONSTITUENTS

TABLE 4. DRINKING WATER WELLS SAMPLED AND DETECTIONS BY COUNTY

TABLE 5. IRRIGATION/FISH CULTURE WELLS SAMPLED AND DETECTIONS BY COUNTY

TABLE 6. SUMMARY OF ALL COMPOUNDS AND WELLS SAMPLED

TABLE 1.
LABORATORY ANALYSES CONDUCTED

METHOD 1 - NITROGEN / PHOSPHORUS PESTICIDES	
ALACHLOR	FENAMIPHOS
AMETRYN	HEXAZINONE
ATRAZINE	IPRODIONE
BROMACIL	METHAZOLE
BUTYLATE	METHYL PARAOXON
CARBOXIN	METOLACHLOR
CHLORPYRIFOS	METRIBUZIN
CURACRON	ORDRAM
CYCLOATE	PROMETON
DEF (TRIBUFOS)	PRONAMIDE
DIAZINON	PROPAZINE
DIPHENAMID	SIMAZINE
DISULFOTON	TEBUTHIURON
DISULFOTON SULFONE	TERBACIL
DISULFOTON SULFOXIDE	TERBUFOS
EPN	ZORIAL

METHOD 2 - CHLORINATED PESTICIDES	
ALDRIN	HCH - ALPHA
BASALIN	HCH - BETA
CAPTAN	HCH - GAMMA
CHLORDANE - GAMMA	HCH - DELTA
CHLORDANE - ALPHA	HEPTACHLOR
CHLOROTHALONIL	HEPTACHLOR EPOXIDE
4, 4 - DDD	HEXACHLOROBENZENE
4, 4 - DDE	METHOXYCHLOR
4, 4 - DDT	PCB'S
DACTHAL (DCPA)	PCNB
DICOFOL	PENDIMETHALIN
DIELDRIN	CIS - PERMETHRIN
ENDOSULFAN	TRANS - PERMETHRIN
ENDOSULFAN II	TOXAPHENE
ENDOSULFAN SULFATE	TRIFLURALIN
ENDRIN	

TABLE 1. (CONTINUED)

METHOD 3 - CHLORINATED ACIDS AND PHENOLS	
ACIFLUORFEN	DINOSEB
BENTAZON	4 - NITROPHENOL
2, 4 - D	PENTACHLOROPHENOL
2, 4 - DB	PICLORAM
DALAPON	2, 4, 5 - T
DICAMBA	2, 4, 5 - TP
DICHLOROPROP	

METHOD 4 - HERBICIDES	
ATRAZINE DEALKYLATED	LINURON
BARBAN	METRIBUZIN DA
CARBOFURAN PHENOL	METRIBUZIN DADK
CARBOFURAN PHENOL 3 - KETO	METRIBUZIN DK
CYANAZINE	NEBURON
DIURON	PRONAMIDE METABOLITE
FENAMIPHOS	PROPANIL
FENAMIPHOS SULFONE	PROPHAM
FENAMIPHOS SULFOXIDE	SWEP
FLUOMETURON	

METHOD 5 - CARBAMATES	
ALDICARB	CARBOFURAN
ALDICARB SULFONE	CARBOFURAN 3 - OH
ALDICARB SULFOXIDE	METHOMYL
BAYGON	NAPTHOL - GAMMA
CARBARYL	OXAMYL

TABLE 1. (CONTINUED)

METHOD 9 - INORGANICS (MINERALS, RESIDUES, NUTRIENTS & METALS)	
CALCIUM, TOTAL	CHROMIUM
CHLORIDES, TOTAL	IRON
COLOR	ARSENIC
HARDNESS (CA, MG)	BARIUM
SULFATES	CADMIUM
TURBIDITY	LEAD
TOTAL KJELDAHL NITROGEN	MERCURY
AMMONIA NITROGEN	SILVER
NITRATE / NITRITE NITROGEN	SELENIUM
PHOSPHATES, TOTAL	BERYLLIUM
PHOSPHATES, ORTHO	FLUORIDE
TOTAL SOLIDS @ 180 C	NICKEL
TOTAL DISSOLVED SOLIDS @ 180 C	ANTIMONY
TOTAL SUSPENDED SOLIDS @ 180 C	THALLIUM
MANGANESE	COPPER
MAGNESIUM	ZINC
SODIUM	ALUMINUM
POTASSIUM	

TABLE 2.
SUMMARY OF PESTICIDES AND OTHER ORGANIC COMPOUNDS DETECTED

	DETECTED CONTAMINANT	NUMBER OF WELLS WITH DETECTS	PERCENTAGE OF WELLS WITH DETECTS	WELLS WITH DETECTS <MCL	WELLS WITH DETECTS >MCL	LEVELS DETECTED (PPB) MIN. - MAX.	MCL (PPB)
	RESULTS ON 614 DRINKING WATER WELLS OUT OF 614 SAMPLED						
1	ACIFLUORFEN	5	0.81%	5	0	0.000 - 3.400	9.0
2	ALACHLOR*	2	0.33%	1	1	0.050 - 25.00	2.0
3	ATRAZINE*	1	0.16%	0	1	0.000 - 10.00	3.0
4	BROMACIL	1	0.16%	1	0	0.670	90.0
5	CARBOFURAN PHENOL	1	0.16%	1	0	5.600	40.0
6	CHLORDANE (ALPHA)	1	0.16%	1	0	0.130	2.0
7	CHLORDANE (GAMMA)	1	0.16%	1	0	0.120	2.0
8	CHLOROFORM	8	1.30%	8	0	1.000 - 8.000	100.0
9	CHLOROMETHANE*	1	0.16%	0	1	0.000 - 7.000	3.0
10	CHLORPYRIFOS	3	0.49%	3	0	0.020 - 0.220	20.0
11	2,4-D	3	0.49%	3	0	0.063 - 0.220	70.0
12	4,4-DDD*	1	0.16%	0	1	0.070 - 0.170	0.1
13	4,4-DDE	1	0.16%	1	0	0.054	0.1
14	4,4-DDT	1	0.16%	1	0	0.020 - 0.060	0.1
15	DIAZINON	1	0.16%	1	0	TRACE	0.6
16	DIBROMOCHLOROMETHANE	1	0.16%	1	0	1.600	N/A
17	DICAMBA	1	0.16%	1	0	0.032	200.0
18	1,1-DICHLOROETHANE	1	0.16%	1	0	7.000	N/A
19	1,2-DICHLOROETHANE	2	0.33%	2	0	1.000 - 3.000	5.0
20	1,1-DICHLOROETHENE	1	0.16%	1	0	TRACE	7.0
21	CIS-1,2-DICHLOROETHENE	6	0.98%	6	0	TRACE - 2.000	70.0
22	TRANS-1,2-DICHLOROETHENE	2	0.33%	2	0	1.000 - 2.000	100.0
23	DIELDRIN	6	0.98%	6	0	0.000 - 0.890	N/A
24	DINOSEB*	3	0.49%	2	1	0.070 - 7.700	7.0
25	HCH GAMMA	2	0.33%	2	0	0.020 - 0.055	0.2
26	HEPTACHLOR EPOXIDE*	2	0.33%	1	1	0.110 - 0.630	0.2
27	HEXACHLORO-1,3-BUTADIENE*	1	0.16%	0	1	0.000 - 40.00	1.0
28	METHYLENE CHLORIDE*	17	2.77%	16	1	0.000 - 9.000	5.0
29	METOLACHLOR	1	0.16%	1	0	4.150	70.0
30	METRIBUZIN	2	0.33%	2	0	0.120 - 28.000	100.0
31	METRIBUZIN DA	1	0.16%	1	0	0.000 - 0.400	100.0
32	METRIBUZIN DADK	1	0.16%	1	0	TRACE	100.0
33	METRIBUZIN DK	1	0.16%	1	0	0.000 - 1.300	100.0
34	NAPHTHALENE*	1	0.16%	0	1	0.000 - 22.00	20.0
35	PENTACHLOROPHENOL	99	16.12%	99	0	0.001 - 0.470	1.0
36	PICLORAM	1	0.16%	1	0	0.270	500.0
37	TETRACHLOROETHENE	2	0.33%	2	0	TRACE - 4.000	5.0
38	TOLUENE	1	0.16%	1	0	1.000	1000.0
39	TOXAPHENE	1	0.16%	1	0	0.000 - 2.400	3.0
40	TRICHLOROETHENE	1	0.16%	1	0	1.000	5.0
41	TRICHLOROFLUOROMETHANE	1	0.16%	1	0	TRACE	2000.0
42	VINYL CHLORIDE	1	0.16%	1	0	TRACE	2.0
43	O-XYLENE	1	0.16%	1	0	1.000	10,000.0

* - INDICATES DETECTED CONSTITUENT WHICH INITIALLY EXCEEDED MAXIMUM CONTAMINANT LEVEL

** - INDICATES DETECTED CONSTITUENT EXCEEDING MAXIMUM CONTAMINANT LEVEL AFTER RESAMPLING

MCL - MAXIMUM CONTAMINANT LEVEL PPB - PARTS PER BILLION N/A - NOT APPLICABLE

NOTE: MINIMUM - MAXIMUM DETECTED LEVELS INCLUDE RESAMPLE RESULTS, SO MORE THAN ONE LEVEL MAY BE INDICATED FOR ONLY ONE WELL. A LEVEL OF 0.000 INDICATES NONE DETECTED IN RESAMPLE.

TABLE 2. (CONTINUED)

	DETECTED CONTAMINANT	NUMBER OF WELLS WITH DETECTS	PERCENTAGE OF WELLS WITH DETECTS	WELLS WITH DETECTS <MCL	WELLS WITH DETECTS >MCL	LEVELS DETECTED (PPB) MIN. - MAX.	MCL (PPB)
	RESULTS ON 471 IRRIGATION & FISH CULTURE WELLS OUT OF 471 SAMPLED						
1	BENTAZON	7	1.49%	7	0	0.31 - 0.71	20.0
2	BROMACIL	1	0.21%	1	0	TRACE	90.0
3	CURACRON ***	3	0.64%	3	0	0.00 - 1.60	N/A
4	MALATHION	1	0.21%	1	0	0.050	200.0
5	METRIBUZIN	2	0.42%	2	0	TRACE - 0.02	100.0
6	METOLACHLOR	1	0.21%	1	0	3.10	70.0
7	PENTACHLOROPHENOL	16	3.40%	16	0	0.00 - 0.03	1.0
8	ZORIAL	1	0.21%	1	0	0.00 - 0.21	N/A

* - INDICATES DETECTED CONSTITUENT WHICH INITIALLY EXCEEDED MAXIMUM CONTAMINANT LEVEL

** - INDICATES DETECTED CONSTITUENT EXCEEDING MAXIMUM CONTAMINANT LEVEL AFTER RESAMPLING

*** - DURING COLLECTION OF WATER SAMPLES, CURACRON CONTAMINATION FROM AN EXTERNAL SOURCE WAS SUSPECTED AND NOTED. THE THREE WELLS HAVE BEEN RESAMPLED WITH NO CURACRON DETECTED IN ANY WELL. RESAMPLING WILL CONTINUE TO VERIFY RESULTS.

MCL - MAXIMUM CONTAMINANT LEVEL PPB - PARTS PER BILLION N/A - NOT APPLICABLE

NOTE: MINIMUM - MAXIMUM DETECTED LEVELS INCLUDE RESAMPLE RESULTS, SO MORE THAN ONE LEVEL MAY BE INDICATED FOR ONLY ONE WELL. A LEVEL OF 0.000 INDICATES NONE DETECTED IN RESAMPLE.

TABLE 2. (CONTINUED)

	DETECTED CONTAMINANT	NUMBER OF WELLS WITH DETECTS	PERCENTAGE OF WELLS WITH DETECTS	WELLS WITH DETECTS <MCL	WELLS WITH DETECTS >MCL	LEVELS DETECTED (PPB) MIN. - MAX.	MCL (PPB)
	RESULTS ON 471 IRRIGATION & FISH CULTURE WELLS OUT OF 471 SAMPLED						
1	BENTAZON	7	1.49%	7	0	0.31 - 0.71	20.0
2	BROMACIL	1	0.21%	1	0	TRACE	90.0
3	CURACRON ***	3	0.64%	3	0	0.00 - 1.60	N/A
4	MALATHION	1	0.21%	1	0	0.050	200.0
5	METRIBUZIN	2	0.42%	2	0	TRACE - 0.02	100.0
6	METOLACHLOR	1	0.21%	1	0	3.10	70.0
7	PENTACHLOROPHENOL	16	3.40%	16	0	0.00 - 0.03	1.0
8	ZORIAL	1	0.21%	1	0	0.00 - 0.21	N/A

* - INDICATES DETECTED CONSTITUENT WHICH INITIALLY EXCEEDED MAXIMUM CONTAMINANT LEVEL

** - INDICATES DETECTED CONSTITUENT EXCEEDING MAXIMUM CONTAMINANT LEVEL AFTER RESAMPLING

*** - DURING COLLECTION OF WATER SAMPLES, CURACRON CONTAMINATION FROM AN EXTERNAL SOURCE WAS SUSPECTED AND NOTED. THE THREE WELLS HAVE BEEN RESAMPLED WITH NO CURACRON DETECTED IN ANY WELL. RESAMPLING WILL CONTINUE TO VERIFY RESULTS.

MCL - MAXIMUM CONTAMINANT LEVEL PPB - PARTS PER BILLION N/A - NOT APPLICABLE

NOTE: MINIMUM - MAXIMUM DETECTED LEVELS INCLUDE RESAMPLE RESULTS, SO MORE THAN ONE LEVEL MAY BE INDICATED FOR ONLY ONE WELL. A LEVEL OF 0.000 INDICATES NONE DETECTED IN RESAMPLE.

TABLE 3.
SUMMARY OF RESULTS ON KEY INORGANIC CONSTITUENTS

	CONSTITUENT	NUMBER OF WELLS SAMPLED	NUMBER OF WELLS WITH RESULTS REPORTED	NUMBER OF WELLS WITH POSITIVE DETECTS	PERCENTAGE OF WELLS WITH DETECTS	NUMBER OF WELLS EXCEEDING MCL	PERCENTAGE OF WELLS EXCEEDING MCL	DETECTED LEVELS IN WELLS EXCEEDING MCL MINIMUM - MAXIMUM	EXISTING MCL	MCL SOURCE
	DRINKING WATER WELLS									
1	NITRATES (1)	606	606	348	57.43%	9	1.49%	10,100 - 47,800	10,000.0	DWS
2	CHROMIUM	606	606	127	20.96%	0	0.00%	N/A	100.0	DWS
3	ARSENIC	606	606	148	24.42%	0	0.00%	N/A	50.0	DWS
4	BARIUM	606	606	417	68.81%	0	0.00%	N/A	2,000.0	DWS
5	CADMIUM (2)	606	606	21	3.47%	8	1.32%	8.0 - 18.8	5.0	DWS
6	LEAD (3)	606	606	376	62.05%	3	0.50%	55.0 - 402.0	50.0	GWS
7	MERCURY (4)	606	606	34	5.61%	5	0.83%	2.1 - 23.8	2.0	DWS
8	SILVER	595	595	42	7.06%	0	0.00%	N/A	50.0	GWS
9	SELENIUM	606	606	69	11.39%	0	0.00%	N/A	50.0	DWS
	IRRIGATION AND FISH CULTURE WELLS									
1	NITRATES	471	471	92	19.53%	0	0.00%	N/A	10,000.0	DWS

NOTES :

(1) - OF THE NINE WELLS EXCEEDING MAXIMUM ALLOWABLE LIMITS, EIGHT HAVE BEEN RESAMPLED. IN FIVE OF THE RESAMPLED WELLS, DETECTED LEVELS WERE WITHIN ALLOWABLE LIMITS. IN THE OTHER THREE WELLS, ORIGINAL RESULTS WERE VERIFIED.

(2) - OF THE EIGHT WELLS EXCEEDING CADMIUM ALLOWABLE LIMITS, FIVE HAVE BEEN RESAMPLED. IN EACH OF THE FIVE, NO CADMIUM WAS DETECTED.

(3) - ONE WELL WITH A DETECTED LEVEL OF 102.0 PPB WAS RESAMPLED, WITH NO LEAD FOUND IN THE RESAMPLE. THE WELL WITH A DETECTED LEVEL OF 402.0 PPB IS AN OLD DUG WELL NOT IN USE FOR MANY YEARS. RESAMPLES OF THESE WELLS ARE SCHEDULED.

(4) - OF THE FIVE WELLS EXCEEDING MERCURY ALLOWABLE LIMITS, TWO HAVE BEEN RESAMPLED. IN ONE WELL, NO MERCURY WAS DETECTED. IN THE OTHER WELL, ORIGINAL RESULTS WERE CONFIRMED.

MCL- MAXIMUM CONTAMINANT LEVEL EXPRESSED IN PARTS PER BILLION

DWS- FEDERAL DRINKING WATER STANDARD

GWS- MISSISSIPPI GROUNDWATER STANDARD

TABLE 4.
SUMMARY OF DRINKING WATER WELLS SAMPLED AND DETECTIONS BY COUNTY

COUNTY CODE AND COUNTY	NUMBER OF WELLS SAMPLED	NUMBER OF WELLS WITH POSITIVE DETECTS	PESTICIDES AND OTHER ORGANIC COMPOUNDS DETECTED
001 ADAMS	6	1	WELL NO. 1 - PENTACHLOROPHENOL
003 ALCORN	3	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
005 AMITE	9	1	WELL NO. 1 - HCH GAMMA
007 ATTALA	7	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL, CARBOFURAN PHENOL WELL NO. 3 - PENTACHLOROPHENOL
009 BENTON	8	2	WELL NO. 1 - CHLOROFORM WELL NO. 2 - PENTACHLOROPHENOL, CHLOROFORM
011 BOLIVAR	8	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
013 CALHOUN	7	1	WELL NO. 1 - METHYLENE CHLORIDE
015 CARROLL	8	2	WELL NO. 1 - METHYLENE CHLORIDE, CHLOROFORM WELL NO. 2 - METHYLENE CHLORIDE, 1,1 - DICHLOROETHENE
017 CHICKASAW	7	0	NONE
019 CHOCTAW	4	1	WELL NO. 1 - CIS 1,2 - DICHLOROETHENE, TRANS 1,2 - DICHLOROETHENE
021 CLAIBORNE	6	2	WELL NO. 1 - NAPHTHALENE, HEXACHLORO - 1, 3 - BUTADIENE WELL NO. 2 - VINYL CHLORIDE
023 CLARKE	5	1	WELL NO. 1 - PENTACHLOROPHENOL, DIAZINON
025 CLAY	5	0	NONE
027 COAHOMA	4	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
029 COPIAH	7	0	NONE
031 COVINGTON	4	0	NONE
033 DESOTO	15	3	WELL NO. 1 - CIS 1,2 - DICHLOROETHENE WELL NO. 2 - CIS 1,2 - DICHLOROETHENE, TRICHLOROFLUOROMETHANE WELL NO. 3 - CIS 1,2 - DICHLOROETHENE
035 FORREST	8	0	NONE
037 FRANKLIN	6	2	WELL NO. 1 - 2,4-D WELL NO. 2 - 2,4-D
039 GEORGE	15	1	WELL NO. 1 - METOLACHLOR, METRIBUZIN, METRIBUZIN DADK
041 GREENE	7	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
043 GRENADA	7	1	WELL NO. 1 - ACIFLUORFEN
045 HANCOCK	12	4	WELL NO. 1 - ACIFLUORFEN, ALACHLOR, ATRAZINE, DINOSEB, METRIBUZIN, METRIBUZIN DA, METRIBUZIN DK, TOXAPHENE WELL NO. 2 - ACIFLUORFEN, ALACHLOR, DINOSEB WELL NO. 3 - PENTACHLOROPHENOL WELL NO. 4 - PENTACHLOROPHENOL

TABLE 4. (CONTINUED)

COUNTY CODE AND COUNTY	NUMBER OF WELLS SAMPLED	NUMBER OF WELLS WITH POSITIVE DETECTS	PESTICIDES AND OTHER ORGANIC COMPOUNDS DETECTED
047 HARRISON	23	1	WELL NO. 1 - PENTACHLOROPHENOL
049 HINDS	4	3	WELL NO. 1 - PENTACHLOROPHENOL, ACIFLUORFEN, 2,4 - D WELL NO. 2 - PENTACHLOROPHENOL, METHYLENE CHLORIDE WELL NO. 3 - PENTACHLOROPHENOL
051 HOLMES	5	4	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL, CHLOROFORM WELL NO. 3 - PENTACHLOROPHENOL, CHLOROFORM, 0 - XYLENE WELL NO. 4 - PENTACHLOROPHENOL
053 HUMPHREYS	10	8	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL WELL NO. 4 - PENTACHLOROPHENOL WELL NO. 5 - PENTACHLOROPHENOL WELL NO. 6 - PENTACHLOROPHENOL, CHLOROFORM WELL NO. 7 - PENTACHLOROPHENOL WELL NO. 8 - PENTACHLOROPHENOL
055 ISSAQUENA	3	2	WELL NO. 1 - PENTACHLOROPHENOL, ACIFLUORFEN WELL NO. 2 - PENTACHLOROPHENOL
057 ITAWAMBA	4	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL, METHYLENE CHLORIDE
059 JACKSON	17	0	NONE
061 JASPER	7	0	NONE
063 JEFFERSON	7	0	NONE
065 JEFF. DAVIS	6	0	NONE
067 JONES	8	0	NONE
069 KEMPER	6	1	WELL NO. 1 - CHLORPYRIFOS, DIELDRIN, PICLORAM
071 LAFAYETTE	12	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
073 LAMAR	5	0	NONE
075 LAUDERDALE	6	0	NONE
077 LAWRENCE	6	0	NONE
079 LEAKE	6	0	NONE
081 LEE	6	0	NONE
083 LEFLORE	9	5	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL, 4,4 - DDD, 4,4 - DDT WELL NO. 4 - PENTACHLOROPHENOL WELL NO. 5 - PENTACHLOROPHENOL, 4,4 - DDE
085 LINCOLN	8	0	NONE
087 LOWNDES	8	2	WELL NO. 1 - ALPHA CHLORDANE, GAMMA CHLORDANE, DIELDRIN, HEPTACHLOR EPOXIDE WELL NO. 2 - DIELDRIN

TABLE 4. (CONTINUED)

COUNTY CODE AND COUNTY	NUMBER OF WELLS SAMPLED	NUMBER OF WELLS WITH POSITIVE DETECTS	PESTICIDES AND OTHER ORGANANIC COMPOUNDS DETECTED
089 MADISON	10	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
091 MARION	6	1	WELL NO. 1 - HCH GAMMA
093 MARSHALL	10	2	WELL NO. 1 - BROMACIL, TETRACHLOROETHENE, CHLOROMETHANE, 1,1 - DICHLOROETHANE WELL NO. 2 - TETRACHLOROETHENE, TRICHLOROETHENE
095 MONROE	8	4	WELL NO. 1 - METHYLENE CHLORIDE WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - METHYLENE CHLORIDE, 1,2 - DICHLOROETHANE WELL NO. 4 - DIELDRIN, HEPTACHLOR EPOXIDE, TRICHLOROMETHANE (CHLOROFORM)
097 MONTGOMERY	4	3	WELL NO. 1 - PENTACHLOROPHENOL, METHYLENE CHLORIDE WELL NO. 2 - METHYLENE CHLORIDE WELL NO. 3 - PENTACHLOROPHENOL
099 NESHOBA	4	0	NONE
101 NEWTON	10	1	WELL NO. 1 - DIELDRIN
103 NOXUBEE	7	2	WELL NO. 1 - CHLORPYRIFOS WELL NO. 2 - DIELDRIN
105 OKTIBBEHA	3	1	WELL NO. 1 - CHLORPYRIFOS
107 PANOLA	4	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
109 PEARL RIVER	16	1	WELL NO. 1 - PENTACHLOROPHENOL
111 PERRY	8	0	NONE
113 PIKE	9	2	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - CHLOROFORM
115 PONTOTOC	5	0	NONE
117 PRENTISS	6	0	NONE
119 QUITMAN	6	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
121 RANKIN	7	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
123 SCOTT	5	1	WELL NO. 1 - CIS 1,2 - DICHLOROETHENE
125 SHARKEY	5	1	WELL NO. 1 - PENTACHLOROPHENOL
127 SIMPSON	7	0	NONE
129 SMITH	8	0	NONE
131 STONE	13	0	NONE
133 SUNFLOWER	13	6	WELL NO. 1 - METHYLENE CHLORIDE WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL, METHYLENE CHLORIDE, TOLUENE WELL NO. 4 - PENTACHLOROPHENOL WELL NO. 5 - METHYLENE CHLORIDE WELL NO. 6 - PENTACHLOROPHENOL
135 TALLAHATCHIE	10	4	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL WELL NO. 4 - PENTACHLOROPHENOL

TABLE 4. (CONTINUED)

COUNTY CODE AND COUNTY	NUMBER OF WELLS SAMPLED	NUMBER OF WELLS WITH POSITIVE DETECTS	PESTICIDES AND OTHER ORGANANIC COMPOUNDS DETECTED
137 TATE	10	1	WELL NO. 1 - DIBROMOCHLOROMETHANE, 1,2 - DICHLOROETHANE
139 TIPPAH	5	1	WELL NO. 1 - PENTACHLOROPHENOL
141 TISHOMINGO	4	1	WELL NO. 1 - PENTACHLOROPHENOL
143 TUNICA	3	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL, CIS 1,2 - DICHLOROETHENE, TRANS 1,2 - DICHLOROETHENE WELL NO. 3 - PENTACHLOROPHENOL
145 UNION	7	0	NONE
147 WALTHALL	7	0	NONE
149 WARREN	4	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - METHYLENE CHLORIDE
151 WASHINGTON	15	0	NONE
153 WAYNE	4	0	NONE
155 WEBSTER	8	3	WELL NO. 1 - METHYLENE CHLORIDE WELL NO. 2 - PENTACHLOROPHENOL, METHYLENE CHLORIDE WELL NO. 3 - PENTACHLOROPHENOL
157 WILKINSON	8	0	NONE
159 WINSTON	4	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
161 YALOBUSHA	6	3	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL
163 YAZOO	11	9	WELL NO. 1 - PENTACHLOROPHENOL, METHYLENE CHLORIDE, DICAMBA WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL WELL NO. 4 - PENTACHLOROPHENOL WELL NO. 5 - PENTACHLOROPHENOL WELL NO. 6 - PENTACHLOROPHENOL, DINOSEB WELL NO. 7 - PENTACHLOROPHENOL, METHYLENE CHLORIDE WELL NO. 8 - PENTACHLOROPHENOL WELL NO. 9 - PENTACHLOROPHENOL
TOTALS	614	137	

TABLE 5.
IRRIGATION AND FISH CULTURE WELLS SAMPLED AND DETECTIONS BY COUNTY

COUNTY CODE AND COUNTY	NUMBER OF WELLS SAMPLED	TOTAL SAMPLES COLLECTED	NUMBER OF WELLS WITH POSITIVE DETECTS	PESTICIDES AND OTHER ORGANIC COMPOUNDS DETECTED
011 BOLIVAR	51	70	5	WELL NO. 1 - PENTACHLOROPHENOL, BENTAZON, METRIBUZIN WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL WELL NO. 4 - PENTACHLOROPHENOL, BENTAZON WELL NO. 5 - BENTAZON
015 CARROLL	5	5	1	WELL NO. 1 - METOLACHLOR
027 COAHOMA	27	27	0	NONE
033 DESOTO	9	9	0	NONE
043 GRENADA	3	3	0	NONE
051 HOLMES	23	23	1	WELL NO. 1 - MALATHION
053 HUMPHREYS	31	33	1	WELL NO. 1 - ZORIAL
055 ISSAQUENA	14	16	2	WELL NO. 1 - BENTAZON WELL NO. 2 - BENTAZON
083 LEFLORE	52	52	0	NONE
107 PANOLA	5	5	0	NONE
119 QUITMAN	30	30	0	NONE
125 SHARKEY	23	23	0	NONE
133 SUNFLOWER	55	56	4	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL WELL NO. 4 - BROMACIL
135 TALLAHATCHIE	26	26	0	NONE
143 TUNICA	29	29	0	NONE
151 WASHINGTON	52	68	11	WELL NO. 1 - PENTACHLOROPHENOL WELL NO. 2 - PENTACHLOROPHENOL WELL NO. 3 - PENTACHLOROPHENOL WELL NO. 4 - PENTACHLOROPHENOL WELL NO. 5 - PENTACHLOROPHENOL WELL NO. 6 - PENTACHLOROPHENOL WELL NO. 7 - PENTACHLOROPHENOL WELL NO. 8 - PENTACHLOROPHENOL WELL NO. 9 - PENTACHLOROPHENOL WELL NO. 10-BENTAZON, METRIBUZIN WELL NO. 11-BENTAZON

TABLE 5. (CONTINUED)

COUNTY CODE AND COUNTY	NUMBER OF WELLS SAMPLED	TOTAL SAMPLES COLLECTED	NUMBER OF WELLS WITH POSITIVE DETECTS	PESTICIDES AND OTHER ORGANIC COMPOUNDS DETECTED
163 YAZOO	22	22	0	NONE
MSEA SITES (3) - 2 IN SUNFLOWER & 1 IN LEFLORE CO.	14	17	3	WELL NO. 1 - CURACRON (SEE NOTE 1) WELL NO. 1 - CURACRON (SEE NOTE 1) WELL NO. 1 - CURACRON (SEE NOTE 1)
TOTALS	471	514	28	443 WELLS - NONE DETECTED 14 WELLS - PENTACHLOROPHENOL 1 WELL - PENTACHLOROPHENOL, BENTAZON, METRIBUZIN 1 WELL - PENTACHLOROPHENOL, BENTAZON 1 WELL - BENTAZON, METRIBUZIN 4 WELLS - BENTAZON 1 WELL - BROMACIL 1 WELL - MALATHION 1 WELL - METOLACHLOR 3 WELLS - CURACRON 1 WELL - ZORIAL

NOTE 1:

THESE THREE WELLS ARE LOCATED IN SAME COTTON FIELD. AT TIME OF SAMPLE COLLECTION, CONTAMINATION OF SAMPLES FROM SOURCE NOT ASSOCIATED WITH GROUNDWATER WAS SUSPECTED. FOLLOW-UP RESAMPLES DETECTED NO CURACRON.

TABLE 6.
GENERAL SUMMARY OF ALL COMPOUNDS AND WELLS SAMPLED

COMPOUND	NUMBER OF WELLS SAMPLED			DRINKING WATER WELLS WITH DETECTS		IRRIGATION & FISH CULTURE WELLS WITH DETECTS		NUMBER OF WELLS WITH DETECTS
	DRINKING WATER	IRRIGATION & FISH CULTURE	TOTAL	< MCL	> MCL	< MCL	> MCL	TOTAL
NITROGEN - PHOSPHORUS PESTICIDES								
ALACHLOR	614	471	1085	1	1	0	0	2
AMETRYN	614	471	1085	0	0	0	0	0
ATRAZINE	614	471	1085	0	1	0	0	1
BROMACIL	614	471	1085	1	0	1	0	2
BUTYLATE	614	471	1085	0	0	0	0	0
CARBOXIN	614	471	1085	0	0	0	0	0
CHLORPYRIFOS	614	471	1085	3	0	0	0	3
CURACRON	614	471	1085	0	0	3	0	3
CYCLOATE	614	471	1085	0	0	0	0	0
DEF (TRIBUFOS)	614	471	1085	0	0	0	0	0
DIAZINON	614	471	1085	1	0	0	0	1
DIPHENAMID	614	471	1085	0	0	0	0	0
DISULFOTON	614	471	1085	0	0	0	0	0
DISULFOTON SULFONE	614	471	1085	0	0	0	0	0
DISULFOTON SULFOXIDE	614	471	1085	0	0	0	0	0
EPN	614	471	1085	0	0	0	0	0
HEXAZINONE	614	471	1085	0	0	0	0	0
IPRODIONE	614	471	1085	0	0	0	0	0
MALATHION	614	471	1085	0	0	1	0	1
METHAZOLE	614	471	1085	0	0	0	0	0
METHYL PARAOXON	614	471	1085	0	0	0	0	0
METOLACHLOR	614	471	1085	1	0	1	0	2
METRIBUZIN	614	471	1085	2	0	2	0	4
ORDRAM	614	471	1085	0	0	0	0	0
PROMETON	614	471	1085	0	0	0	0	0
PRONAMIDE	614	471	1085	0	0	0	0	0
PROPAZINE	614	471	1085	0	0	0	0	0
SIMAZINE	614	471	1085	0	0	0	0	0
TEBUTHIURON	614	471	1085	0	0	0	0	0
TERBACIL	614	471	1085	0	0	0	0	0
TERBUFOS	614	471	1085	0	0	0	0	0
ZORIAL	614	471	1085	0	0	1	0	1

TABLE 6. (CONTINUED)

COMPOUND	NUMBER OF WELLS SAMPLED			DRINKING WATER WELLS WITH DETECTS		IRRIGATION & FISH CULTURE WELLS WITH DETECTS		NUMBER OF WELLS WITH DETECTS
	DRINKING WATER	IRRIGATION & FISH CULTURE	TOTAL	< MCL	> MCL	< MCL	> MCL	TOTAL
CHLORINATED PESTICIDES								
ALDRIN	614	471	1085	0	0	0	0	0
BASALIN	614	471	1085	0	0	0	0	0
CAPTAN	614	471	1085	0	0	0	0	0
CHLORDANE - GAMMA	614	471	1085	1	0	0	0	1
CHLORDANE - ALPHA	614	471	1085	1	0	0	0	1
CHLOROTHALONIL	614	471	1085	0	0	0	0	0
4,4 - DDD	614	471	1085	0	1	0	0	1
4,4 - DDE	614	471	1085	1	0	0	0	1
4,4 - DDT	614	471	1085	1	0	0	0	1
DACTHAL (DCPA)	614	471	1085	0	0	0	0	0
DICOFOL	614	471	1085	0	0	0	0	0
DIELDRIN	614	471	1085	5	1	0	0	6
ENDOSULFAN	614	471	1085	0	0	0	0	0
ENDOSULFAN II	614	471	1085	0	0	0	0	0
ENDOSULFAN SULFATE	614	471	1085	0	0	0	0	0
ENDRIN	614	471	1085	0	0	0	0	0
HCH - ALPHA	614	471	1085	0	0	0	0	0
HCH - BETA	614	471	1085	0	0	0	0	0
HCH - GAMMA	614	471	1085	2	0	0	0	2
HCH - DELTA	614	471	1085	0	0	0	0	0
HEPTACHLOR	614	471	1085	0	0	0	0	0
HEPTACHLOR EPOXIDE	614	471	1085	1	1	0	0	2
HEXACHLOROBENZENE	614	471	1085	0	0	0	0	0
METHOXYCHLOR	614	471	1085	0	0	0	0	0
PCBs	614	471	1085	0	0	0	0	0
PCNB	614	471	1085	0	0	0	0	0
PENDIMETHALIN	614	471	1085	0	0	0	0	0
CIS - PERMETHRIN	614	471	1085	0	0	0	0	0
TRANS - PERMETHRIN	614	471	1085	0	0	0	0	0
TOXAPHENE	614	471	1085	1	0	0	0	1
TRIFLURALIN	614	471	1085	0	0	0	0	0

TABLE 6. (CONTINUED)

COMPOUND	NUMBER OF WELLS SAMPLED			DRINKING WATER WELLS WITH DETECTS		IRRIGATION & FISH CULTURE WELLS WITH DETECTS		NUMBER OF WELLS WITH DETECTS
	DRINKING WATER	IRRIGATION & FISH CULTURE	TOTAL	< MCL	> MCL	< MCL	> MCL	TOTAL
CHLORINATED ACIDS & PHENOLS								
ACIFLUORFEN	614	471	1085	3	1	0	0	4
BENTAZON	614	471	1085	0	0	7	0	7
2, 4 - D	614	471	1085	3	0	0	0	3
2, 4 - DB	614	471	1085	0	0	0	0	0
DALAPON	614	471	1085	0	0	0	0	0
DICAMBA	614	471	1085	1	0	0	0	1
DICHLOROPROP	614	471	1085	0	0	0	0	0
DINOSEB	614	471	1085	2	1	0	0	3
4 - NITROPHENOL	614	471	1085	0	0	0	0	0
PENTACHLOROPHENOL	614	471	1085	99	0	16	0	115
PICLORAM	614	471	1085	1	0	0	0	1
2, 4, 5 - T	614	471	1085	0	0	0	0	0
2, 4, 5 - TP	614	471	1085	0	0	0	0	0
HERBICIDES								
ATRAZINE DEALKYLATED	614	471	1085	0	0	0	0	0
BARBAN	614	471	1085	0	0	0	0	0
CARBOFURAN PHENOL	614	471	1085	1	0	0	0	1
CARBOFURAN PHENOL, 3 - KETO	614	471	1085	0	0	0	0	0
CYANAZINE	614	471	1085	0	0	0	0	0
DIURON	614	471	1085	0	0	0	0	0
FENAMIPHOS	614	471	1085	0	0	0	0	0
FENAMIPHOS SULFONE	614	471	1085	0	0	0	0	0
FENAMIPHOS SULFOXIDE	614	471	1085	0	0	0	0	0
FLUOMETURON	614	471	1085	0	0	0	0	0
LINURON	614	471	1085	0	0	0	0	0
METRIBUZIN DA	614	471	1085	1	0	0	0	1
METRIBUZIN DADK	614	471	1085	1	0	0	0	1
METRIBUZIN DK	614	471	1085	1	0	0	0	1
NEBURON	614	471	1085	0	0	0	0	0
PRONAMIDE METABOLITE	614	471	1085	0	0	0	0	0
PROPANIL	614	471	1085	0	0	0	0	0
PROPHAM	614	471	1085	0	0	0	0	0
SWEP	614	471	1085	0	0	0	0	0

TABLE 6. (CONTINUED)

COMPOUND	NUMBER OF WELLS SAMPLED			DRINKING WATER WELLS WITH DETECTS		IRRIGATION & FISH CULTURE WELLS WITH DETECTS		NUMBER OF WELLS WITH DETECTS
	DRINKING WATER	IRRIGATION & FISH CULTURE	TOTAL	< MCL	> MCL	< MCL	> MCL	TOTAL
CARBAMATES								
ALDICARB	614	471	1085	0	0	0	0	0
ALDICARB SULFONE	614	471	1085	0	0	0	0	0
ALDICARB SULFOXIDE	614	471	1085	0	0	0	0	0
BAYGON	614	471	1085	0	0	0	0	0
CARBARYL	614	471	1085	0	0	0	0	0
CARBOFURAN	614	471	1085	0	0	0	0	0
CARBOFURAN 3 - OH	614	471	1085	0	0	0	0	0
METHOMYL	614	471	1085	0	0	0	0	0
NAPHTHOL - ALPHA	614	471	1085	0	0	0	0	0
OXAMYL	614	471	1085	0	0	0	0	0
VOLATILE ORGANIC COMPOUNDS								
BENZENE	614	0	614	0	0	N/A	N/A	0
BROMOBENZENE	614	0	614	0	0	N/A	N/A	0
BROMODICHLOROMETHANE	614	0	614	0	0	N/A	N/A	0
BROMOMETHANE	614	0	614	0	0	N/A	N/A	0
CHLOROBENZENE	614	0	614	0	0	N/A	N/A	0
CHLOROETHANE	614	0	614	0	0	N/A	N/A	0
CHLOROMETHANE	614	0	614	0	0	N/A	N/A	0
o - CHLOROTOLUENE	614	0	614	0	1	N/A	N/A	1
p - CHLOROTOLUENE	614	0	614	0	0	N/A	N/A	0
DIBROMOCHLOROMETHANE	614	0	614	0	0	N/A	N/A	0
DIBROMOMETHANE	614	0	614	1	0	N/A	N/A	1
1, 2 - DICHLOROBENZENE	614	0	614	0	0	N/A	N/A	0
1, 3 - DICHLOROBENZENE	614	0	614	0	0	N/A	N/A	0
1, 4 - DICHLOROBENZENE	614	0	614	0	0	N/A	N/A	0
1, 1 - DICHLOROETHANE	614	0	614	0	0	N/A	N/A	0
1, 2 - DICHLOROETHANE	614	0	614	1	0	N/A	N/A	1
1, 1 - DICHLOROETHENE	614	0	614	2	0	N/A	N/A	2
CIS - 1, 2 - DICHLOROETHENE	614	0	614	1	0	N/A	N/A	1
TRANS 1, 2 - DICHLOROETHENE	614	0	614	6	0	N/A	N/A	6
DICHLOROMETHANE (METHYLENE CHLORIDE)	614	0	614	2	0	N/A	N/A	2
1, 2 - DICHLOROPROPANE	614	0	614	16	1	N/A	N/A	17
1, 3 - DICHLOROPROPANE	614	0	614	0	0	N/A	N/A	0
2, 2 - DICHLOROPROPANE	614	0	614	0	0	N/A	N/A	0

TABLE 6. (CONTINUED)

COMPOUND	NUMBER OF WELLS SAMPLED			DRINKING WATER WELLS WITH DETECTS		IRRIGATION & FISH CULTURE WELLS WITH DETECTS		NUMBER OF WELLS WITH DETECTS
	DRINKING WATER	IRRIGATION & FISH CULTURE	TOTAL	< MCL	> MCL	< MCL	> MCL	TOTAL
1, 1 - DICHLOROPROPENE	614	0	614	0	0	N/A	N/A	0
CIS - 1, 3 - DICHLOROPROPENE	614	0	614	0	0	N/A	N/A	0
TRANS - 1, 3 - DICHLOROPROPENE	614	0	614	0	0	N/A	N/A	0
ETHYL BENZENE	614	0	614	0	0	N/A	N/A	0
HEXACHLORO - 1, 3, - BUTADIENE	614	0	614	0	1	N/A	N/A	1
NAPHTHALENE	614	0	614	0	1	N/A	N/A	1
STYRENE	614	0	614	0	0	N/A	N/A	0
1, 1, 1, 2 - TETRACHLOROETHANE	614	0	614	0	0	N/A	N/A	0
1, 1, 2, 2 - TETRACHLOROETHANE	614	0	614	0	0	N/A	N/A	0
TETRACHLOROETHENE	614	0	614	2	0	N/A	N/A	2
TETRACHLOROMETHANE	614	0	614	0	0	N/A	N/A	0
TOLUENE	614	0	614	1	0	N/A	N/A	1
TRIBROMOETHANE	614	0	614	0	0	N/A	N/A	0
1, 2, 4 - TRICHLOROBENZENE	614	0	614	0	0	N/A	N/A	0
1, 1, 1 - TRICHLOROETHANE	614	0	614	0	0	N/A	N/A	0
1, 1, 2 - TRICHLOROETHANE	614	0	614	0	0	N/A	N/A	0
TRICHLOROETHENE	614	0	614	1	0	N/A	N/A	1
TRICHLOROFLUOROMETHANE	614	0	614	1	0	N/A	N/A	1
TRICHLOROMETHANE (CHLOROFORM)	614	0	614	8	0	N/A	N/A	8
1, 2, 3 - TRICHLOROPROPANE	614	0	614	0	0	N/A	N/A	0
VINYL CHLORIDE	614	0	614	1	0	N/A	N/A	1
O - XYLENE	614	0	614	1	0	N/A	N/A	1
M - XYLENE	614	0	614	0	0	N/A	N/A	0
P - XYLENE	614	0	614	0	0	N/A	N/A	0
INORGANIC COMPOUNDS (1)								
CALCIUM, TOTAL	606	0	606	N/A		N/A		592
CHLORIDES, TOTAL	601	462	1063	595	6	462	0	1063
HARDNESS (CA, MG)	606	0	606	N/A		N/A		598
SULFATES	606	0	606	427	2	N/A		429
TOTAL KJELDAHL NITROGEN	606	0	606	N/A		N/A		459
AMMONIA NITROGEN	606	0	606	N/A		N/A		265
NITRATE / NITRITE NITROGEN	606	471	1077	339	9	92	0	440
PHOSPHATES, TOTAL	606	0	606	N/A		N/A		458
PHOSPHATES, ORTHO	606	0	606	N/A		N/A		257
TOTAL SOLIDS @ 180 C	588	0	588	N/A		N/A		588
TOTAL DISSOLVED SOLIDS @ 180 C	588	0	588	563	25	N/A		588

TABLE 6. (CONTINUED)

COMPOUND	NUMBER OF WELLS SAMPLED			DRINKING WATER WELLS WITH DETECTS		IRRIGATION & FISH CULTURE WELLS WITH DETECTS		NUMBER OF WELLS WITH DETECTS
	DRINKING WATER	IRRIGATION & FISH CULTURE	TOTAL	< MCL	> MCL	< MCL	> MCL	TOTAL
MAGNESIUM	606	0	606	N/A		N/A		581
MANGANESE	606	0	606	255	135	N/A		390
SODIUM	606	0	606	N/A		N/A		579
POTASSIUM	606	0	606	N/A		N/A		580
CHROMIUM	606	0	606	127	0	N/A		127
IRON	606	0	606	339	130	N/A		469
ARSENIC	606	0	606	148	0	N/A		148
BARIUM	606	0	606	417	0	N/A		417
CADMIUM	606	0	606	13	8	N/A		21
LEAD	606	0	606	373	3	N/A		376
MERCURY	606	0	606	29	5	N/A		34
SILVER	595	0	595	42	0	N/A		42
SELENIUM	606	0	606	69	0	N/A		69
BERYLLIUM	606	0	606	11	0	N/A		11
FLUORIDE	606	0	606	171	1	N/A		172
NICKEL	606	0	606	104	0	N/A		104
ANTIMONY	606	0	606	21	7	N/A		28
THALLIUM	606	0	606	4	0	N/A		4
COPPER	606	0	606	254	1	N/A		255
ZINC	606	0	606	321	1	N/A		322
ALUMINUM	606	0	606	289	25	N/A		314

NOTES:

COMPOUNDS LISTED ARE STANDARD FOR AGCHEM PROGRAM ANALYSES. HOWEVER, OTHER ANALYSES ARE OCCASIONALLY CONDUCTED FOR PURPOSES ASSOCIATED WITH THE AGCHEM PROGRAM. THESE ADDITIONAL ANALYSES ARE NOT INCLUDED IN THIS REPORT.

MCL = MAXIMUM CONTAMINANT LEVEL. THESE MAY BE BASED ON PRIMARY OR SECONDARY DRINKING WATER STANDARDS, MISSISSIPPI GROUNDWATER STANDARDS, HEALTH ADVISORIES, ETC. THESE ARE SUBJECT TO PERIODIC REVIEW AND REVISION.

N/A = NOT APPLICABLE, OR INFORMATION NOT AVAILABLE

(1) - THE MAJORITY OF THESE LISTED INORGANIC COMPOUNDS DO OCCUR NATURALLY, SO THEIR PRESENCE IN GROUNDWATER IS NOT AN AUTOMATIC INDICATION OF CONTAMINATION. WHILE MOST ARE NOT ASSOCIATED WITH AGRICULTURAL ACTIVITIES, THEY ARE OF IMPORTANCE IN DETERMINATION OF OVERALL GROUNDWATER QUALITY.