United States
Environmental Protection
Agency

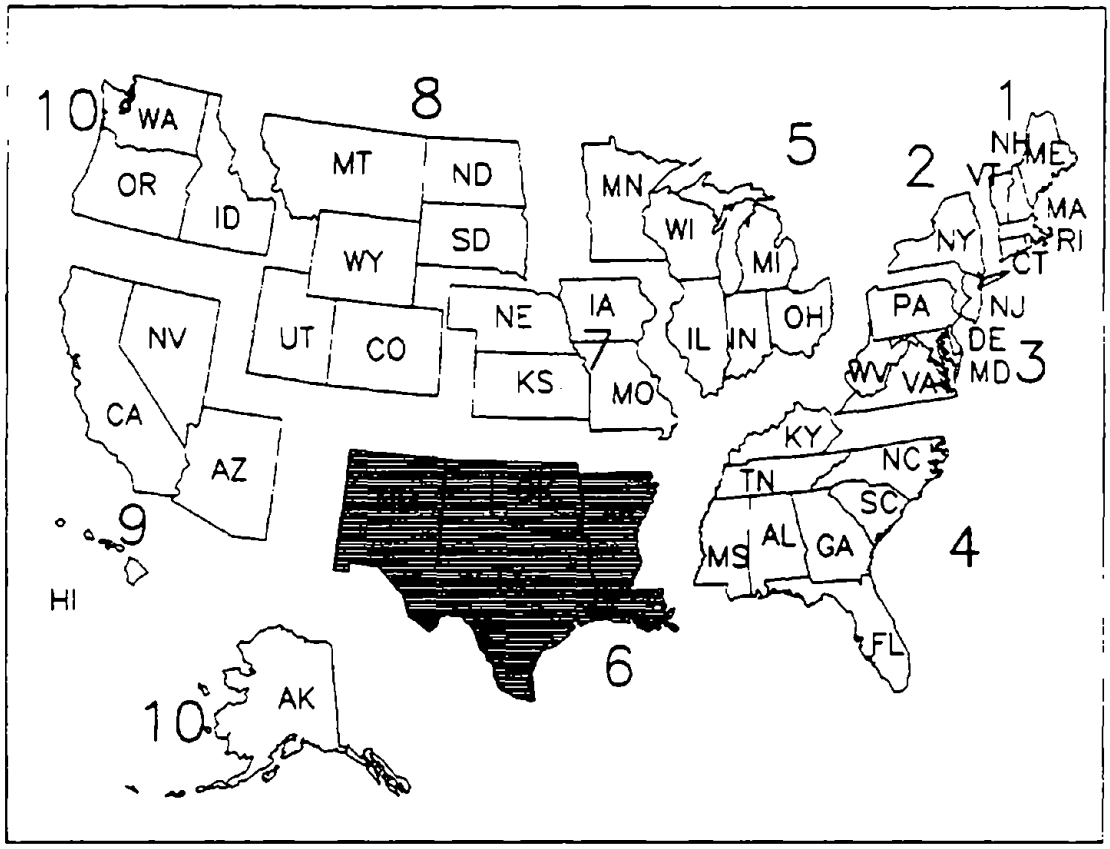
Prevention
Pesticides and
Toxic Substances
(H7507C)

EPA 734-12-92-001
August 1992

EPA Pesticides In Ground Water Database

A Compilation Of Monitoring Studies: 1971-1991

Region 6



ARKANSAS LOUISIANA NEW MEXICO OKLAHOMA
TEXAS

REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

PB93-163772

2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
August 1992	final report 1971 - 1991

4. TITLE AND SUBTITLE
Pesticides In Ground Water Database
A Compilation Of Monitoring Studies: 1971 - 1991
Region 6

5. FUNDING NUMBERS
none

6. AUTHOR(S)
Constance Hoheisel
Joan Karrie
Susan Lees
Leslie Davies-Hilliard
Patrick Hannon

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
US Environmental Protection Agency
Office of Pesticide Programs
Environmental Fate & Effects Division (H7507C)
401 M. St.
Washington, DC 20460

8. PERFORMING ORGANIZATION REPORT NUMBER
EPA 734-R-92-007

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
same as above

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
same as above

11. SUPPLEMENTARY NOTES
Supersedes the "Pesticides In Ground Water Database: 1988 Interim Report"

12a. DISTRIBUTION/AVAILABILITY STATEMENT
publically available, no limitations

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)
This report presents summary results on pesticide monitoring of ground water from 1971 to 1991. It was compiled from ground water monitoring projects performed primarily by federal agencies, state agencies and research institutions. The data is well and sample specific. The report is broken into a National Summary and 10 US EPA regional volumes. The information ispresented as text, maps, graphs and tables on a national, EPA regional and state/county level.

The Region 6 volume is comprised of data from Arkansas, Louisiana,Oklahoma, and Texas.

14. SUBJECT TERMS			15. NUMBER OF PAGES
database	ground water	pesticides	168
national	water	pesticide monitoring	16. PRICE CODE
report	drinking water		

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
none	none	none	none

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Pesticides in Ground Water Database
A Compilation of Monitoring Studies: 1971 - 1991
Region 6

Office of Pesticide Programs
Environmental Fate and Effects Division
Environmental Fate and Ground Water Branch
Henry Jacoby, Chief

Pesticide Monitoring Program Section
Constance Hoheisel
Joan Karrie Susan Lees
Leslie Davies-Hilliard Patrick Hannon
Roy Bingham

Ground Water Technology Section
Elizabeth Behl
David Wells Estella Waldman

August 1992

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INTRODUCTION AND OVERVIEW

I. INTRODUCTION

The U.S. Environmental Protection Agency/Office of Pesticide Programs (EPA/OPP) is responsible for protecting human and environmental health from unreasonable risk due to pesticide exposure. Monitoring efforts carried out during the last decade have shown that the nation's ground water can become contaminated with pesticides, particularly in areas with high pesticide use and vulnerable aquifers. Therefore, OPP has taken a strong preventive approach to the protection of this valuable resource. Regulatory activities have evolved to include, as a condition of registration or re-registration, a more rigorous evaluation of a pesticide's potential to reach ground water. OPP has also formed strong partnerships with other federal and state agencies responsible for various aspects of ground-water protection.

The Pesticides in Ground Water Database (PGWDB) was created to provide a more complete picture of ground-water monitoring for pesticides in the United States. It is a collection of ground-water monitoring studies conducted by federal, state and local governments, the pesticide industry and private institutions. It consists of monitoring data and auxiliary information in both computerized and hard-copy form. This report, *Pesticides in Ground Water Database -- A Compilation of Monitoring Studies: 1971 - 1991*, was prepared to summarize and share the results of the studies in the PGWDB. It consists of 11 volumes: a National Summary and ten EPA regional summaries. Each volume provides a detailed description of the computerized PGWDB and a guide to reading and interpreting the data. The data are presented as maps, graphs and tables.

These data are extremely valuable, but must be interpreted carefully. In general, the PGWDB provides an overview of the ground-water monitoring efforts for pesticides in the United States, the pesticides that are being found in the nation's ground water, and the areas of the country that appear to be vulnerable to pesticide contamination.

When viewed as a whole, it might appear the data gathered for this report are representative of the United States and/or of general drinking water quality. This is not necessarily the case. For example, many studies included sampling of aquifers that supply drinking water, however these samples were usually taken at the well, not at the consumer's tap. Therefore, conclusions concerning finished water can only be drawn by careful examination of the data on a study by study basis. In addition, ground-water monitoring programs vary widely in sampling intensity and design from state to state. Not surprisingly, the states that sampled the greatest number of wells were often those that found the greatest number of contaminated wells. This should not be misconstrued to mean that the ground water in these states is more contaminated than that of other states, or that all ground water in these states is contaminated. On the contrary, an active, supported sampling program generally indicates a high regard for ground-water quality.

The database and this report are the result of the efforts of a great many individuals, significant among whom are the state officials and principal investigators who gave generously of their time to provide OPP with information concerning their work. In publishing this report, OPP intends not only to provide data, but also to identify points of contact, in order to share expertise among those responsible for the protection of the nation's ground-water resources.

To make this information available to as many decision makers in state and other federal agencies as possible, the computerized portion of the PGWDB will become a part of the Pesticide Information Network (PIN).[1] The PIN is a computerized collection of files that contain pesticide monitoring and regulatory information. The PIN functions much like a PC-PC bulletin board and can be accessed by anyone with a computer and a modem. The PIN is currently undergoing an expansion that will allow new types of information to be included and increase the number of simultaneous users. The new PIN will be available in 1993 and will contain the PGWDB, environmental fate chemical/physical parameters for pesticides, pesticide regulatory information (Restricted Use, Special Review, canceled and suspended) and a certification and training bibliography.

II. THE ROLE OF PESTICIDE MONITORING

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires EPA to monitor the environment for pesticide residues [section 20, parts (b) and (c)]. The primary goal of pesticide monitoring is to improve the soundness of FIFRA risk/benefit regulatory decisions by providing information on the concentrations of pesticide residues and the effects that exposure to these residues have on human health and the environment. In addition, long-term changes in environmental quality can be detected through the analysis of monitoring data. OPP can use this information to measure the effectiveness of regulatory decisions and to indicate potential environmental problems.

EPA has directly sponsored some large-scale pesticide monitoring projects, such as the National Monitoring Programs of the 1970s[2] and the recent National Survey of Pesticides in Drinking Water Wells.[3] This type of monitoring is intended to provide information on a national level involving large numbers of pesticides. It does not provide information concerning localized problems or long-term trends. This method of data gathering is also extremely resource-intensive. An alternative approach for OPP is to support and gather information from monitoring studies performed by others. Since the responsibility for protecting the nation's ground water is shared by federal and state governments, OPP's data-handling responsibilities not only include procuring the most current information for its own needs, but also sharing this information with its partners in state and federal agencies. The development of the Pesticides in Ground Water Database is a step in this direction.

III. BACKGROUND

OPP began collecting ground-water studies for the PGWDB in the early 1980s. In 1988, an effort was made to review and catalog these data. Summary results of this effort were computerized and then published in the *Pesticides in Ground Water Database: 1988 Interim Report.*[4]

Since the 1988 Interim Report was issued, many things have changed. State-sponsored projects, initiated in the late 1980s, have been completed and digitized, monitoring methodologies and computer technology have improved, and the quality and quantity of data have increased. Based on extensive use of the 1988 database by OPP's Ground Water Technology Section and the comments received from other users, both within and outside of OPP, the computerized database and the hard-copy report were restructured. The new computerized structure is more appropriate for the quality and quantity of the information currently available, as well as for that expected in the future. The new structure is both well and sample specific; that is, it contains description and location information for each well sampled and the results of each analysis. This structure allows ground-water monitoring data to be sorted in a variety of ways, such as by well depth, well location, and sampling date. The new report structure provides national, regional, state and county summaries so that readers can select the resolution appropriate for their needs.

Most of the data in the PGWDB have been produced directly by state agencies or by private institutions that are sponsored by federal or state agencies. Some pesticide industry-sponsored studies have also been included in the PGWDB. These studies were conducted to support the registration status of a particular pesticide and were generally conducted in areas that are vulnerable to ground-water contamination by pesticides.

The database is a compilation of data submitted in several different formats, including computerized and hard-copy sampling results as well as hard-copy reports containing study descriptions and summary information. Many states are now routinely storing their data in computerized form and have shared their data with OPP. Some of the hard-copy data are from older studies that were never computerized. Some are from studies that have been computerized, but OPP has not yet been able to obtain the data. OPP is also retaining hard-copy final reports for as many studies as possible. These reports provide vital information such as study design, well design, analytical methods, quality control and environmental conditions.

The focus of the PGWDB is quite narrow. It contains only ground-water monitoring data in which pesticides were included as analytes. Therefore, the PGWDB does not replicate STORET[6] or WATSTORE[6]. While these large databases contain some pesticide monitoring data and some ground-water data, their primary focus is general water quality. As a result, these databases contain a great deal more information about water quality, but lack many of the pesticide focused studies that are included in the PGWDB. Many states have used STORET to store water-quality data, including analyses for pesticides. STORET data were downloaded and added to the PGWDB when the data could be directly

associated with specific study summaries or reports sent to OPP by state agencies. These state agencies provided their agency code, station codes, parameter codes, sampling dates and other pertinent information so that the correct data could be extracted from STORET.

Data from the National Survey of Pesticides in Drinking Water Wells (NPS)[3] have not been included in PGWDB, since these data have been recently and extensively presented elsewhere. We are currently working on electronically transferring the results of the NPS pesticide analyses so they will be available when the PGWDB becomes part of the PIN.

IV. THE COMPUTERIZED DATABASE

The computerized database consists of three files related to each other by study identification and unique well number. The first file contains information describing the study, the second contains information describing each well and the third contains sample information. Data elements stored in these files are presented in Figure 1. These data elements are based on EPA's recommended minimum set of data elements for ground-water monitoring published in *Definitions for the Minimum Set of Data Elements for Ground-Water Quality, July 22, 1990.*[8]

FIGURE 1. Data Elements for the Pesticides in Ground Water Database

STUDY FILE	WELL FILE	SAMPLE FILE
Study Number	Study Number(s)	Study Number
Study Title	Unique Well Number[1]	Unique Well Number[1]
Sponsoring Agency(ies)	State and County FIPS Codes[2]	Pesticide[7]
Project Officer(s) (PO)	Latitude and Longitude[3]	Concentration (ug/L)
PO Address(es)	Depth to Water Table (m)	Limit of Detection (ug/L)
PO Telephone(s)	Well Depth (m)	Sample date
USEPA Region	Depth to Top and Bottom of Screen Interval (m)	Analytical Method[8]
Starting and Ending Dates	Well Type[4]	Origin of Contamination[9]
Publication Date	Well Log & Other Information[5]	
Abstract	Altitude[6]	

1. This is a unique identifier assigned to each well in the well file. Many states have assigned a unique identifier to wells sampled. In these cases, the number was retained, and used in the PGWDB as that well's unique well number.

2. The Federal Information Processing Standard (FIPS) alphabetic or numeric codes for states (example MI is the alphabetic code for Michigan, 26 in the numeric code for Michigan). County codes are three digit numeric codes.

3. Coordinate representations that indicate a location on the surface of the earth using the equator (latitude) and the Prime Meridian (longitude) as origin. Coordinates are measured in degrees, minutes, and seconds with an indicator of north or south, and east or west.

4. Wells have been classified as follows:
   Drinking water public community - a system of piped drinking water that either has at least 15 service connections or serves at least 25 permanent residents.
   Drinking water public non-community - wells serving public facilities such as fire stations, schools, or libraries.
   Drinking water private - privately owned wells serving a residence or farm.
   Non-drinking water monitoring - wells installed specifically for monitoring ground water.
   Non-drinking water other - wells used for irrigation, industrial application, etc.

5. This field will allow storage of limited well log or other information about the well, such as construction details.

6. The vertical distance from the National Reference Datum to the land surface or other measuring point in meters.

7. Pesticides are tracked by their Chemical Abstracts System (CAS) number. There is also a cross-reference file that contains all pesticide synonyms and other OPP reference numbers. Any chemical that is currently or has ever been registered as a pesticide by the USEPA, Office of Pesticide Programs is eligible to be included in the PGWDB. Some chemicals might be more commonly associated with industrial processes; however, if these chemicals are now or were previously registered and used as pesticides, monitoring results will be included in the database.

8. A short name, reference or description of the analytical method which was used. This field is not intended to hold the entire method.

9. An origin of contamination is listed for each analysis performed as follows:
   NFU - Known or suspected normal field use
   PS - Known or suspected point source
   UNK - Unknown source of contamination

These files will be available through the PIN in 1993. The data management software for this system is ORACLE running under UNIX. However, OPP will accept and translate data created in nearly any format, operating system or medium. To access the PIN, contact User Support at 703-305-7499.

V. THE 1992 PESTICIDES IN GROUND WATER DATABASE REPORT

The 1992 PGWDB report is a summary and presentation of all the data OPP currently has available, both in computerized and in hard-copy form, concerning pesticides in ground water. The report is organized as a National Summary and ten EPA regional summaries. Each volume provides background information on pesticide monitoring, a description of the computerized portion of the database and a guide to reading and interpreting the data presented in the report.

The National Summary contains summary results of the data collection effort for all states and a discussion of the data. The regional volumes contain data from the individual states in each EPA Region. Each regional volume contains state summaries, which consist of: 1) a short overview of the state's philosophy and pertinent regulations concerning ground-water quality and pesticides, 2) a summary of each study or monitoring effort sent to OPP, and 3) summary data for each state presented in tables, graphs and maps. In essence, the study summaries were written by the principal investigators of each study. Whenever possible, the author's abstracts, summaries and conclusions were reproduced *verbatim*, so that the tone and intent of their work would not be misinterpreted.

There are two appendices in each volume of the report. Appendix I contains a Pesticide Cross Reference Table, which provides pesticide names, synonyms and the regulatory status and lifetime Health Advisory (HA) Level or Maximum Contaminant Level (MCL)[7] for each pesticide. Appendix II provides a brief overview and reference information for the NPS.

Summary and Presentation of Ground-Water Monitoring Data

The data in this report are presented in three different formats: maps, graphs and tables. Their format and content are explained below. Each format is displayed at four different resolution levels: national, regional, state and county. The charts and maps were intended to provide an "at-a-glance" visual summary of the information collected for the area in question. The tables provide detailed information concerning sampling dates, numbers of wells sampled, samples analyzed, concentration ranges, and the relationship between pesticide concentrations and current EPA drinking water standards.

1. Maps

The maps presented in this report display the number of wells sampled and the number of wells with pesticide detections. Map legends are consistent throughout the report to assist in any visual comparison of the maps. A regional-scale map illustrating the frequency of pesticide detections as a function of the total number of wells sampled is presented at the beginning of each EPA regional volume. The regional maps display information for each state in that EPA region. All of the regional maps are included in the National Summary. In addition, a state- scale map, in which the data are presented at the county level, is included with each state summary. State maps are also annotated with a list of pesticides detected in that state.

2. Graphs

Bar graphs, for each state within a region, illustrate the number of wells sampled, the number of wells with pesticide detections, and the number of wells with pesticide detections exceeding the MCL or lifetime HA. The graphs present this information ranked in descending order by the number of wells with pesticide detections. The version of this graph in the National Summary displays this information for each state. A similar graph in each EPA regional volume presents data only for the states in that region. The National Summary contains an additional graph, illustrating the above information by pesticide. Pesticides for which analyses were performed but were not detected in any wells are listed alphabetically at the end.

3. Tables

Two basic data tables are used throughout this report to summarize ground-water monitoring information: the "Pesticides" table and the "Wells" table. Figures 2 and 3 provide a detailed explanation of the information contained in each column for the two standard tables. The numbers that occur in the field descriptors correspond to the definitions listed below the example table.

The "Pesticides" table is illustrated in Figure 2. In this table, information is organized by pesticide. The monitoring locations, sampling frequencies, number of wells monitored, sampling results and concentration ranges are provided. In the National Summary, this table details the monitoring location to the state level and also includes the regulatory status for each pesticide. In the regional volumes, monitoring location is provided to the county level for each state and the table is expanded to include monitoring data for samples taken from each well.

FIGURE 2. Pesticides Table

PESTICIDE SAMPLING IN THE STATE OF _____

			WELL RESULTS			SAMPLE RESULTS			
PESTICIDE 1	COUNTY 2	DATE 3	TOTAL WELLS SAMPLED 4	# OF POSITIVE WELLS 5		TOTAL # SAMPLES 6	NUMBER OF POSITIVE SAMPLES 7		RANGE OF CONCENTRATION (ug/L) 8
		YR/MO		≥ MCL	< MCL		≥ MCL	< MCL	
Pesticide A	County A	1989/1,3							
		1990/6							
	County B	1987/1-5							
TOTAL DISCRETE WELLS OR SAMPLES			9	10	10	11	12	12	
Pesticide B	County A	1989							
		1990							
	County B	1987							
TOTAL DISCRETE WELLS/SAMPLES									
GRAND TOTAL DISCRETE WELLS/SAMPLES			13	14	14	15	16	16	

1 The tables are arranged in alphabetical order by the parent pesticide common name. Degradates of parent pesticides are listed directly following the parent. Any chemical that is currently or has ever been registered as a pesticide by the USEPA Office of Pesticide Programs is eligible to be included in these tables. Some chemicals included in these tables are more commonly associated with industrial processes; however, these chemicals were at some time also registered as pesticides.

2 County names are listed in alphabetical order for each pesticide that was monitored.

3 Well sampling dates are given by year and month(s). Months separated by a comma (1,3) means that samples were taken in these months only. Months separated by a dash (1-5) is the range of months in which sampling occurred, samples were taken in all months within the range.

4 The total number of wells that were sampled at least once during the time period stated in the previous column.

5 Wells with pesticide detections within the time period given in the date column (3). Wells with positive analytical results were classified based upon whether the results were above or below the MCL. If a pesticide did not have an established MCL, the lifetime HA level was used and noted at the end of the table. If neither of these values were established, the well was classified as less than the MCL. Wells were classified based upon their highest analytical result. Therefore, any well with at least one positive analysis equal to or greater than the MCL or HA during the time period listed in the date column (3) was classified as ≥ MCL. Any well with at least one positive analysis but all analyses less than the MCL or HA was classified as < MCL.

6 The total number of samples analyzed for that pesticide within the time period recorded in the date column.

7 Samples with pesticide detections were counted based upon whether the results were above or below the MCL or lifetime HA as stated in 5 above.

8 The range of positive results in ug/L (ppb) for the time period specified in the date column.

9 The total number of discrete wells that were sampled at least once and analyzed for the pesticide listed in column 1. *See Note

10 The total number of discrete wells in which the pesticide was detected based upon whether the results were above or below the MCL. Wells were classified as explained in 5 above, based upon the highest analytical result.

11 Total number of samples analyzed for a particular pesticide.

12 The total number of samples in which the pesticide was detected that are ≥ MCL or < MCL as explained in 5 above.

13 The grand total of discrete wells sampled in the state for any pesticide. * See Note

14 The grand total of discrete wells with at least one detection of any pesticide. Wells are classified above or below MCL or HA as explained in 5 above. *See Note

15 Grand total of samples taken in the state. *See Note

16 The grand total of samples with any pesticide detection for the state. Samples were classified as ≥ or < the MCL based upon their highest analytical result as explained in 5 above. *See Note

*Note: Some wells were sampled more than once, (i.e., during several successive years) and some wells were sampled for more than one pesticide. Therefore, the total number of discrete wells is not necessarily the arithmetic sum of the wells listed. Similarly some samples were analyzed for more than one pesticide, therefore, the total number of discrete samples for the state will not be, in all cases, the arithmetic sum for the column.

Figure 3 illustrates the "Wells" table. In this table, ground-water monitoring information is organized by well type, or use, and source of contamination. In the National Summary, the information is summarized by state. In the regional volumes, the information is summarized by county for each state in the region.

FIGURE 3. Wells Table

STATE OF _____
WELLS BY COUNTY

COUNTY	TYPES OF WELLS									SOURCE OF CONTAMINATION (NUMBER OF WELLS)		
	DRINKING WATER 1			MONITORING 2			OTHER 3					
	TOTAL SMPLD 4	≥ MCL 5	< MCL 5	TOTAL SMPLD 4	≥ MCL 5	< MCL 5	TOTAL SMPLD 4	≥ MCL 5	< MCL 5	NFU 6	PS 7	UNK 8
County A												
County B												
TOTAL 9												

1 Drinking Water wells include community (municipal), public non-community, and private wells. Public non-community wells are those that exclusively serve public buildings such as fire stations, schools, or libraries.

2 Monitoring wells, installed solely to monitor ground water for contaminants.

3 Other wells include: irrigation wells, stock watering wells, springs, and tile drains.

4 Total number of each type of well sampled in each county.

5 The number of wells per county in which a pesticide was detected. Wells were classified based upon whether the results were above or below an MCL for any of the pesticides detected. If a pesticide did not have an established MCL, the lifetime HA level was used. If neither of these values were applicable, the well was classified as less than the MCL and it was so noted at the end of the table. Wells were classified based upon their highest analytical result. Therefore, any well with at least one positive analysis greater than or equal to the MCL or HA was classified as ≥ MCL. Any well with at least one positive analysis but all analyses less than the MCL or HA was classified as < MCL.

Contaminated wells were placed in one of the following categories based on the opinion of the study director:

6 NFU = Known or Suspected Normal Field Use.

7 PS = Known or Suspected Point Source.

8 UNK = Unknown source of contamination. Wells were categorized as "unknown" if the study director did not know the source of contamination, or if there was no information available concerning the source of contamination.

9 Total number of wells in each category.

VI. DATA INTERPRETATION

Ground-water monitoring data in this report have been assembled from numerous sources, including state and federal agencies, chemical companies, consulting firms, and private institutions that are investigating the potential for ground-water contamination by pesticides. These data are extremely valuable, but must be interpreted carefully. In general, the PGWDB provides a relatively comprehensive overview of the ground-water monitoring efforts for pesticides in the United States, the pesticides that are being found in the nation's ground water, and the areas of the country that appear to be the most vulnerable to pesticide contamination.

Nationally, part of OPP's regulatory mission is to prevent contamination of ground-water resources resulting from the normal use of registered pesticides. OPP routinely reassesses the impact that registered pesticides have on the quality of ground-water resources. The PGWDB will be used to support ongoing regulatory activities, such as ground-water label advisories, monitoring studies required for pesticide re-registration and special review activities. In addition, combining the information in the PGWDB with other environmental fate data and usage data will assist OPP, at an early stage in the regulatory process, in refining criteria used to identify pesticides that tend to leach to ground water.

On a state or local level, the PGWDB can be used as a reference so that a state may access data from neighboring states. Evidence that pesticide residues occur in ground water can be used to target a state's resources for future monitoring and to re-assess pesticide management practices to prevent future degradation of ground-water quality. The information presented in this report will also be useful to state and regional agencies when implementing two pollution-prevention measures being developed by EPA; the *Restricted Use Rule* and the *State Management Plans* outlined in the *Pesticides and Ground Water Strategy*. Additional uses for the data in the PGWDB include identification of areas in need of further study, identification of the intensity of monitoring for particular pesticides, and graphic display of ground-water monitoring activities and localization of pesticide contamination.

VII. DATA LIMITATIONS

Despite their apparent value, these data do have limitations and must be used and interpreted carefully. Differences in study design, laboratory procedures/equipment, sampling practices, or well use can affect results. Some of the limitations governing the interpretation of the data in the PGWDB are discussed below:

1) The PGWDB is not a complete data set of all ground-water monitoring for pesticides in the United States. While we have attempted to include as many sources as possible, other data exist of which we are not aware or to which we do not yet have access.

2) Monitoring for pesticides in ground water has not been performed in a uniform manner throughout the United States. Some states have extensive monitoring programs for pesticide residues, while others have more limited monitoring programs. In general, more extensive ground-water monitoring programs tend to be found in the states where pesticide use is heavy. This creates a picture that does not necessarily represent the overall impact of pesticides on ground-water quality nationwide.

3) Differences in ground-water monitoring study design can radically affect the results. Many monitoring efforts were initiated in response to suspected problems, and therefore yielded a disproportionately high number of positive samples. These results cannot be extrapolated to represent a larger region or state. Other efforts sampled a small number of wells or sampled under conditions in which contamination was unlikely. Still others were statistically designed studies, intended to be extrapolated to a specific population of wells. Each of these scenarios presents a vastly different view of the condition of the ground-water resource sampled.

4) Analytical methods and limits of detection have changed over time, and also vary from laboratory to laboratory. Therefore, comparisons between the results of different studies and across several years must be performed carefully to avoid errors in interpretation.

5) Differences in construction, depth, location and intended use can greatly affect the likelihood that a particular well will become contaminated by pesticides. Some of these issues were addressed in the individual study summaries when such details were available. However, this information was not always provided and tends to be obscured when large amounts of data are summarized. The reader is cautioned to read the study summaries carefully and interpret the resulting data summaries conservatively.

VIII. THE FUTURE

The vulnerability of ground water to contamination by pesticides depends upon a variety of factors including depth, topography, soil, climate, pesticide use and pesticide application practices. In some cases, ground water is shallow or closely connected with surface water and the results of surface activities can be observed within months. More often, contamination is not observed for many years, allowing cause-and-effect relationships to become obscured. This report, for the most part, is a retrospective examination of the agricultural practices of the 1960s and 1970s, the results of which were observed through monitoring performed 20 years later. The condition of our ground-water resources for the next 20 years will be greatly affected by how we are handling our chemicals now. Our challenge today is clearly prospective.

EPA's Office of Pesticide Programs (OPP) is planning to publish a summary report of the data in the PGWDB on approximately a yearly basis. We are interested in presenting the data in a manner that is the most helpful to as many users as possible. The following are areas in which we would like to receive comments:

1. Should future reports summarize only "new data" (those received since the last report) or all of the data? Should we continue to report very old monitoring data (10 to 20 years), given the fact that some of these studies had very high detection limits and monitored for pesticides that are no longer of regulatory interest?

2. What changes should be made to the maps, graphs and tables? Are they too detailed or not detailed enough? Are important pieces of information missing? Is there a clearer or more useful way to present these data?

3. How are those outside of OPP using the PGWDB?

We appreciate all of those who took the time to comment on the draft version of this report. Many of the suggestions offered were included in this final version. However, some very good suggestions regarding changes to the tables could not be included in this report due to time constraints. These suggestions were taken seriously and will be considered for future reports.

For the PGWDB to retain its value, OPP must continue to gather and share as much pesticide monitoring information as possible. Any government agency or private institution that would like to have its work included in the PGWDB should provide a hard copy of a final or interim report and the sample and well data in electronic format. PGWDB data elements are listed on page OV-4 of this report. Electronic media should be accompanied by a description that includes, hardware compatibility (IBM, Apple etc.), operating system (DOS, UNIX, OS2), format identification (ASCII or software package name) and a data dictionary. Anyone wishing to provide comments or data may do so by contacting:

Constance A. Hoheisel
U. S. Environmental Protection Agency
Office of Pesticide Programs
Environmental Fate and Effects Division (H7507C)
401 M Street, SW
Washington, DC 20460

Telephone: 703-305-5455
FAX: 703-305-6309

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5. *U.S. Environmental Protection Agency, Office of Information Resources Management* **STORET** (Water Quality Database). Washington, D.C. User assistance: 1-800-424-9067.

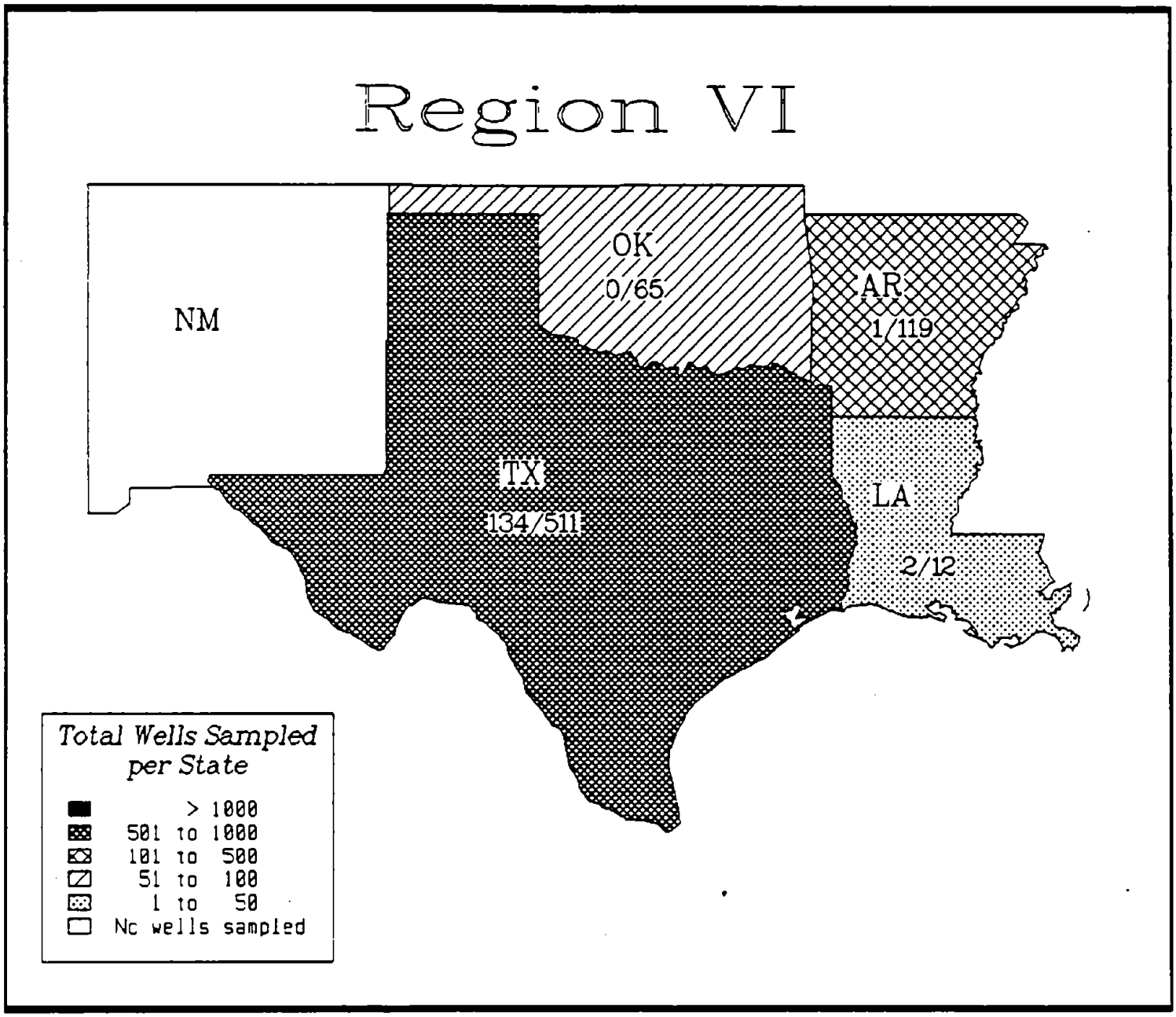
6. *U.S. Geological Survey, National Water Data Exchange.* **WATSTORE** (Water Quality Database). Reston, VA. For further information: 703-648-5671.

7. *U.S. Environmental Protection Agency, Office of Water.* **Drinking Water Regulations and Health Advisories.** Washington, D.C., November 1991. Tel: 202-260-7571.

8. *U.S. Environmental Protection Agency, Office of Ground Water and Drinking Water* **Definitions for the Minimum Set of Data Elements for Ground-Water Quality.** Washington, D.C., 1991.

Well Sampling by State

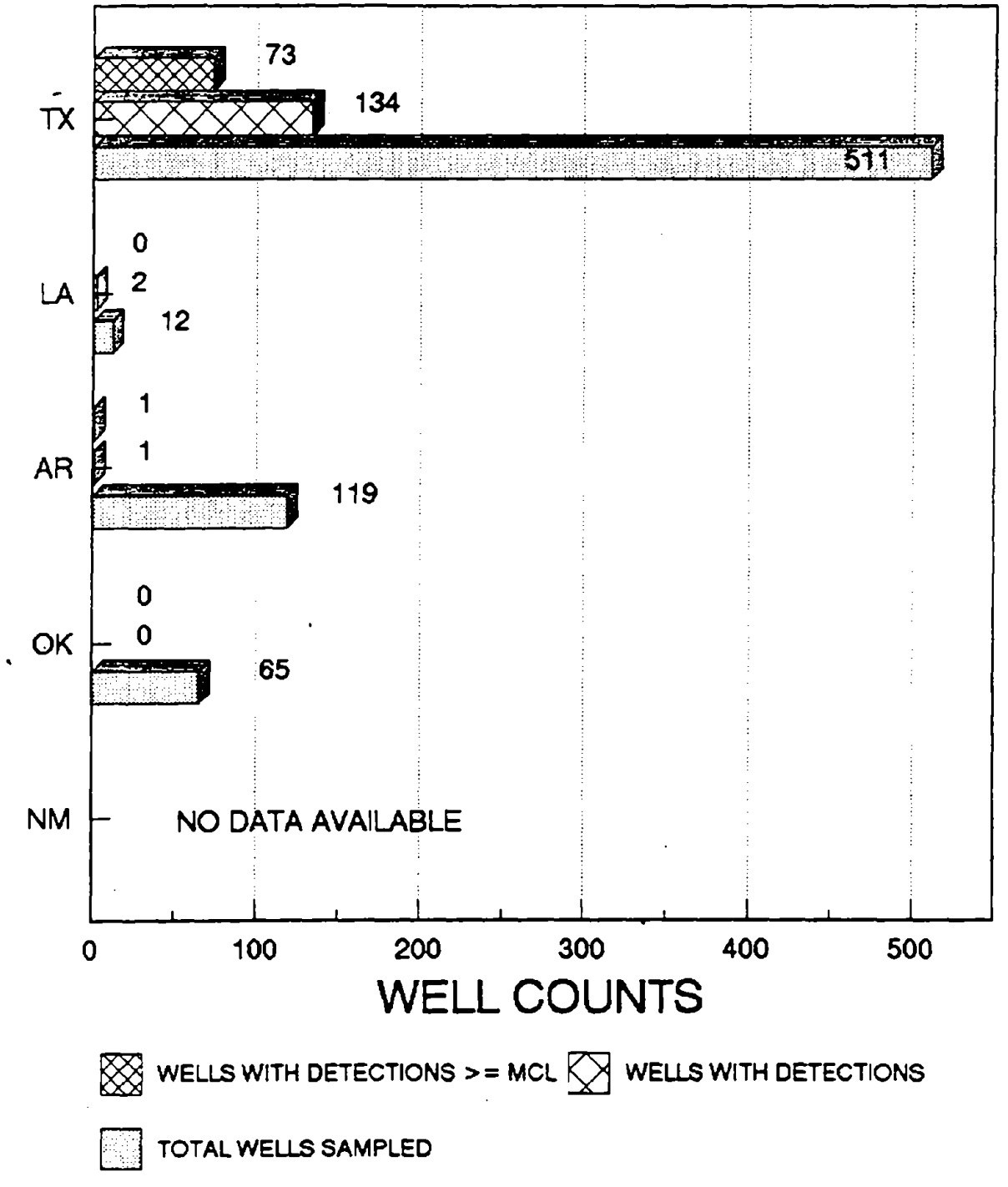
(Total Number of Wells with Pesticide Detections / Total Number of Wells Sampled)



REGION 6

WELL STATUS BY STATE

DESCENDING BY NUMBER OF WELLS WITH DETECTIONS

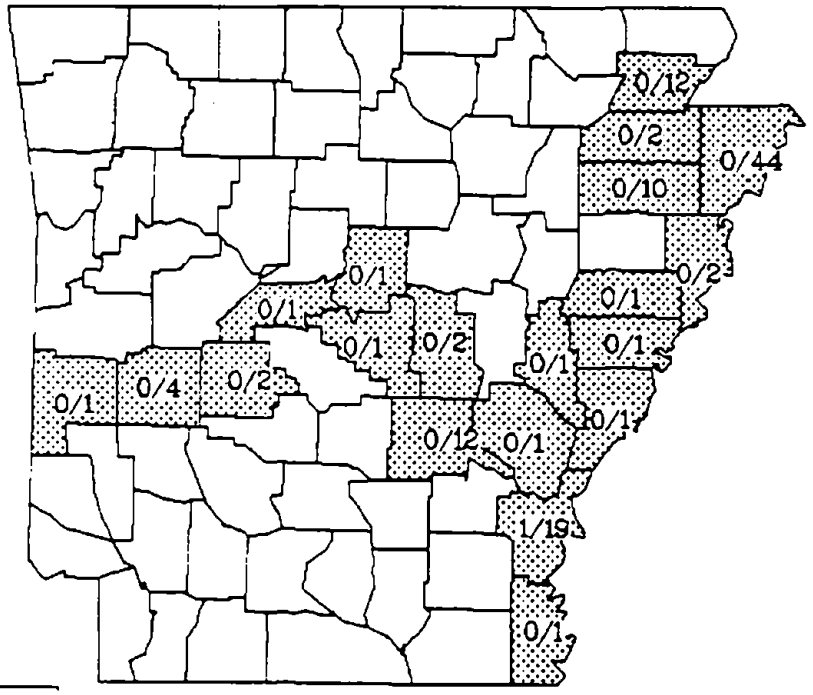


STATE SUMMARIES

Well Sampling by County

(Total Number of Wells with Pesticide Detections / Total Number of Wells Sampled)

Arkansas



Total Wells Sampled per County

■	> 1000
▩	501 to 1000
⊠	101 to 500
▨	51 to 100
⊡	1 to 50
□	No wells sampled

Pesticides Detected

Alachlor
Atrazine
Metolachlor

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ARKANSAS

OVERVIEW OF STATE LEGISLATIVE AND ENVIRONMENTAL POLICIES REGARDING PESTICIDES IN GROUND WATER

The Arkansas Department of Pollution and Ecology has conducted testing of ground water as well as surface water under its Clean Water Act monitoring which includes screening for most of the major pesticides, except the carbamates, which require additional laboratory resources. They have also contracted with the United States Geological Survey to conduct special studies of areas considered vulnerable to pesticide contamination.

REPORTED STUDIES OF PESTICIDES IN GROUND WATER

Cavalier, T.C. (August 1988), **The Presence and Persistence of Selected Pesticides in Arkansas Groundwater**. University of Arkansas, Masters Thesis. Studies conducted 1985-87.

Lavy, T.L., Mattice, J.D. and T.C. Cavalier (Sept. 1985) **Analyses of Groundwater for Trace Levels of Pesticides**. Technical Completion Report Research Project G-893-02, Arkansas Water Resources Research Center, University of Arkansas, Fayetteville, AR 72701.

Primary Objective

The purpose of this project was to monitor ground water in Arkansas for the presence of pesticides that are commonly used in the state, and if such contamination is found, to determine the extent and cause of the problem.

Design

This project was designed as a limited monitoring study and only sites that were considered to be highly susceptible to contamination were selected. Other criteria for selecting a site included: (1) locations where pesticides are applied in an intensive farming operation, (2) good field history and records of pesticide use, (3) irrigation wells readily accessible for sampling, and (4) cooperation of the land owner. Ideally, [they] were also looking for relatively shallow wells. Over the period from 1985-1987, 119 wells, springs, or community water supplies in agricultural and forested areas of Arkansas were sampled.

Pesticides selected for analysis, their analytical methods and detection limits are given below. All samples were not analyzed for all pesticides. A stability study of alachlor, metolachlor, propanil, 2,4-D, and dichlorprop in fortified ground-water samples to determine the typical degradation time periods was also included.

Pesticide	Analytical Method	Detection Limit(ug/l)
Acifluorfen	HPLC	0.50
Alachlor	GC/ECD	0.10
Aldicarb	HPLC	5.00
Atrazine	HPLC	0.50
Benomyl	HPLC	0.50
Cyanazine	HPLC	0.50
Cypermethrin	GC/ECD	0.25
2,4-D	GC/ECD	0.10
Dichlorprop	GC/ECD	0.10
Diuron	HPLC	0.25
Fenvalerate	GC/ECD	0.50
Fluometuron	HPLC	0.50
Hexazinone	HPLC	0.25
Linuron	HPLC	0.50
Metolachlor	GC/ECD	0.20
Permethrin	GC/ECD	0.20
Picloram	GC/ECD	0.20
Proponil	GC/ECD	0.10

1985 Well Sites

Twenty-eight irrigation wells from three area locations in southeast Arkansas were sampled and analyzed for acifluorfen, alachlor, atrazine, cyanazine, diuron, fluometuron, linuron, metolachlor and propanil. The sites were in the Altheimer-Lake Dick area of Jefferson County and in Pickens and Kelso in Desha County. Sampling was performed just prior to and during the peak of the irrigation season.

1986 Well Sites

Twenty-eight sites were selected for sampling in Greene, Craighead, Poinsett and Mississippi counties. These areas have more coarse-textured soils and shallow water tables than the previous sites. Samples were taken in June and August, 1986. The Mississippi county sites had been rated by the DRASTIC model as the most likely candidates for pesticide contamination because of the relatively high sand content of many of the soils and the shallow water table. Samples taken from these sites were tested for the same pesticides as the 1985 samples, as well as for aldicarb, benomyl, cypermethrin, fenvalerate, and permethrin.

In August of 1986, municipal drinking water samples were collected from twenty municipalities and analyzed for the presence of all of the above-mentioned pesticides. These samples were taken directly from faucets at randomly selected sites in each town.

Also in 1986, six hand-pump wells and two springs in the Ouachita National Forest were sampled and analyzed for four herbicides commonly used in pine forests to control hardwoods: 2,4-D, dichlorprop, hexazinone and picloram.

1987 Well Sites

In cooperation with the Mississippi County Cooperative Extension Service, 35 irrigation and domestic wells were sampled in August, 1987. Samples were analyzed for all pesticides given above, except the four herbicides for which the forest samples were tested.

Results and Conclusions

Of the 119 wells tested, the presence of pesticides was detected in only one well. A single irrigation well tested in 1985 showed levels of alachlor, atrazine, and metolachlor at 5.8, 5.5, and 6.9 ppb, respectively. Further investigation, including follow-up sampling suggested a point source of contamination. Pesticides were not detected in any of the other samples. The estimated half-lives determined from the stability study ranged from 196 to 1907 days.

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PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
2,4-D	GARLAND	1986/10	2	0	0	2	0	0	
	MONTGOMERY	1986/10	4	0	0	4	0	0	
	PERRY	1986/10	1	0	0	1	0	0	
	POLK	1986/10	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			8	0	0	8	0	0	
Acifluorfen	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	0	0	33	0	0	
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	0	0	168	0	0	
Alachlor	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Alachlor)	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	1	0	33	1	0	5.8
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	1	0	168	1	0	5.8
Aldicarb	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDON	1986/8	2	0	0	2	0	0	
	DESHA	1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Aldicarb)	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			83	0	0	111	0	0	
Atrazine	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	1	0	33	1	0	5.5
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	1	0	168	1	0	5.5

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Benomyl	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			83	0	0	111	0	0	
Cyanazine	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	0	0	33	0	0	
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Cyanazine)	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	3	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	0	0	168	0	0	
Cypermethrin	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			83	0	0	111	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Dichloroprop	GARLAND	1986/10	2	0	0	2	0	0	
	MONTGOMERY	1986/10	4	0	0	4	0	0	
	PERRY	1986/10	1	0	0	1	0	0	
	POLK	1986/10	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			8	0	0	8	0	0	
Diuron	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	0	0	33	0	0	
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	0	0	186	0	0	
Fenvalerate	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Fenvalerate)	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			83	0	0	111	0	0	
Fluometuron	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	0	0	33	0	0	
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Fluometuron)	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	0	0	168	0	0	
Hexazinone	GARLAND	1986/10	2	0	0	2	0	0	
	MONTGOMERY	1986/10	4	0	0	4	0	0	
	PERRY	1986/10	1	0	0	1	0	0	
	POLK	1986/10	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			8	0	0	8	0	0	
Linuron	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	0	0	33	0	0	
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Linuron)	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	0	0	168	0	0	
Metolachlor	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1985/5,8	17	0	1	33	0	1	6.9
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	0	1	168	0	1	6.9

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Permethrin	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	
	DESHA	1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			83	0	0	111	0	0	
Picloram	GARLAND	1986/10	2	0	0	2	0	0	
	MONTGOMERY	1986/10	4	0	0	4	0	0	
	PERRY	1986/10	1	0	0	1	0	0	
	POLK	1986/10	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			8	0	0	8	0	0	
Propanil	ARKANSAS	1986/8	1	0	0	1	0	0	
	CHICOT	1986/8	1	0	0	1	0	0	
	CRAIGHEAD	1986/6,8	2	0	0	3	0	0	
	CRITTENDEN	1986/8	2	0	0	2	0	0	

PESTICIDE SAMPLING IN THE STATE OF ARKANSAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Propenil)	DESHA	1985/5,8	17	0	0	33	0	0	
		1986/8	2	0	0	2	0	0	
	FAULKNER	1986/8	1	0	0	1	0	0	
	GREENE	1986/6,8	12	0	0	23	0	0	
	JEFFERSON	1985/3,5, 8	11	0	0	24	0	0	
		1986/8	1	0	0	1	0	0	
	LEE	1986/8	1	0	0	1	0	0	
	LONOKE	1986/8	2	0	0	2	0	0	
	MISSISSIPPI	1986/6,8	9	0	0	15	0	0	
		1987/8	35	0	0	35	0	0	
	MONROE	1986/8	1	0	0	1	0	0	
	PHILLIPS	1986/8	1	0	0	1	0	0	
	POINSETT	1986/6,8	10	0	0	20	0	0	
	PULASKI	1986/8	1	0	0	1	0	0	
	ST. FRANCIS	1986/8	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			111	0	0	168	0	0	
GRAND TOTAL DISCRETE WELLS/SAMPLES			119	1	0	176	1	0	

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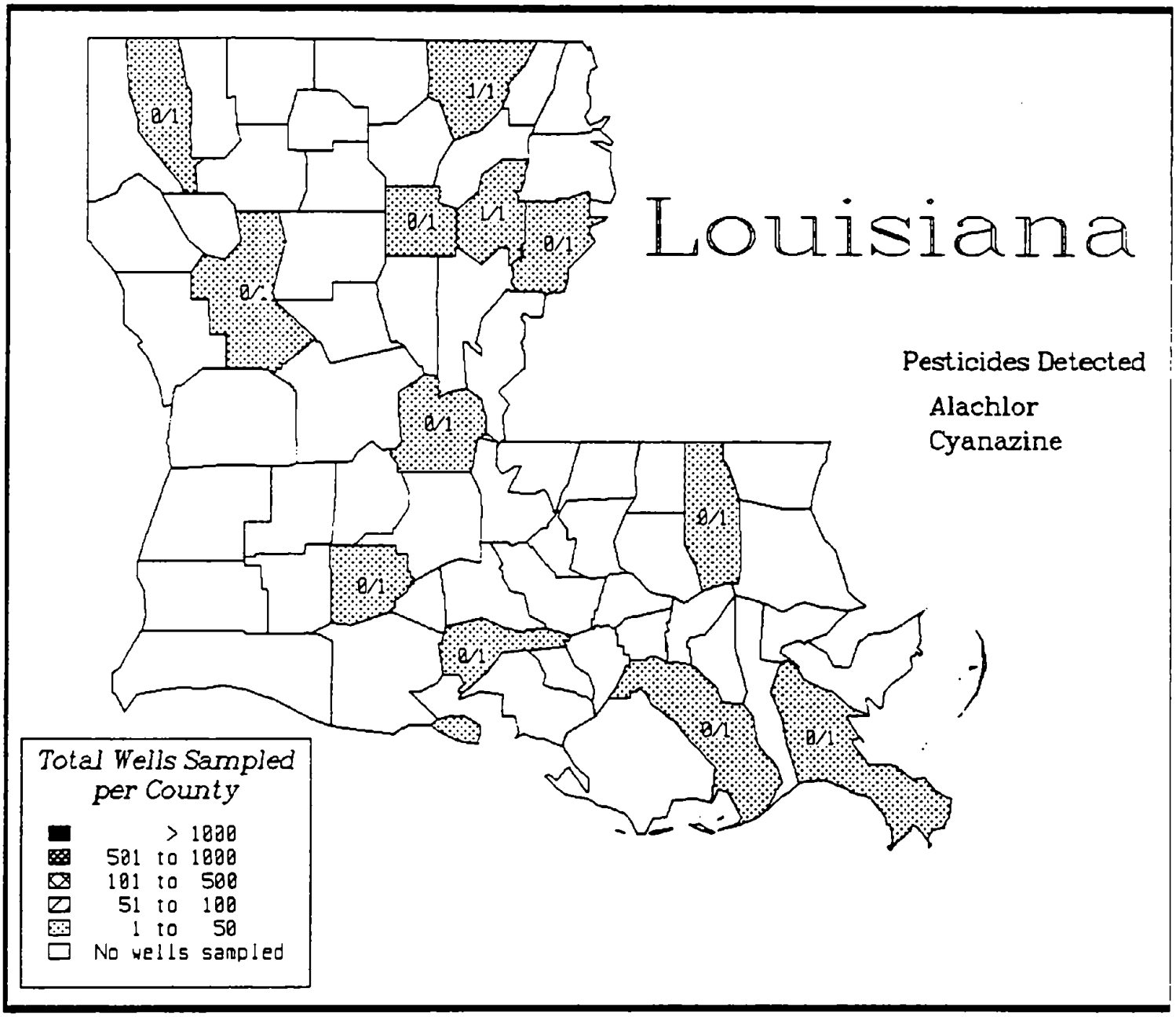
STATE OF ARKANSAS
WELLS BY COUNTY

COUNTY	TYPES OF WELLS									SOURCE OF CONTAMINATION (NUMBER OF WELLS)		
	DRINKING WATER			MONITORING			OTHER					
	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	NFU*	PS*	UNK*
Arkansas	1	0	0	0	0	0	0	0	0	0	0	0
Chicot	1	0	0	0	0	0	0	0	0	0	0	0
Craighead	1	0	0	0	0	0	1	0	0	0	0	0
Crittenden	2	0	0	0	0	0	0	0	0	0	0	0
Desha	2	0	0	0	0	0	17	1	0	0	1	0
Faulkner	1	0	0	0	0	0	0	0	0	0	0	0
Garland	2	0	0	0	0	0	0	0	0	0	0	0
Greene	1	0	0	0	0	0	11	0	0	0	0	0
Jefferson	1	0	0	0	0	0	11	0	0	0	0	0
Lee	1	0	0	0	0	0	0	0	0	0	0	0
Lonoke	2	0	0	0	0	0	0	0	0	0	0	0
Mississippi	28	0	0	0	0	0	16	0	0	0	0	0
Monroe	1	0	0	0	0	0	0	0	0	0	0	0
Montgomery	4	0	0	0	0	0	0	0	0	0	0	0
Perry	1	0	0	0	0	0	0	0	0	0	0	0
Phillips	1	0	0	0	0	0	0	0	0	0	0	0
Poinsett	0	0	0	0	0	0	10	0	0	0	0	0
Polk	1	0	0	0	0	0	0	0	0	0	0	0
Pulaski	1	0	0	0	0	0	0	0	0	0	0	0
St. Francis	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL	53	0	0	0	0	0	66	1	0	0	1	0

* NFU = Known or Suspected Normal Field Use
PS = Known or Suspected Point Source
UNK = Unknown

Well Sampling by County

(Total Number of Wells with Pesticide Detections / Total Number of Wells Sampled)



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LOUISIANA

OVERVIEW OF STATE LEGISLATIVE AND ENVIRONMENTAL POLICIES REGARDING PESTICIDES IN GROUND WATER

In 1988, the Louisiana Legislature voted to give the Louisiana Department of Agriculture and Forestry jurisdiction over pesticides regulations and permitting. The overall responsibility for ground-water monitoring and protection lies with the Louisiana Department of Environmental Quality. Therefore, these two departments are working closely together in an effort to determine the extent of pesticide intrusion into the ground-water supplies of the State.

REPORTED STUDIES OF PESTICIDES IN GROUND WATER

Calhoun, H. F., III, Director, Pesticide and Environmental Programs, Louisiana Department of Agriculture & Forestry, Tel: 504-925-3763. **1987 Survey of Louisiana Ground Water for Pesticides.** Study conducted in 1987. (Reported 1988, 11 pp.)

Primary Objective

As a follow-up to the U.S. Environmental Protection Agency's National Survey of Pesticides in Ground Water, water samples were collected from 12 wells throughout the state, and analyzed for pesticides which are regularly used on crops grown near the wells. The purpose of this study was to determine if the ground water in Louisiana has been contaminated with pesticides as a result of agricultural practices.

Design

During August and September of 1987, water samples were collected from one well in each of the 12 parishes listed in Table 1, and analyzed for pesticides which are regularly used on crops grown near the wells. The well sites were selected based on aquifers, soil types, crops grown, and associated pesticides.

Six of the samples were taken from private water wells located on farms, and 4 were taken from public water wells located on Louisiana State University Agricultural Center Research Stations. One sample was taken from a private well located at a commercial applicator/pesticide dealer's site, and the remaining sample was taken from a private, rural, residential water well that the owner felt had been contaminated. Data regarding the number of persons served by each well and the water uses are documented in the following Table 2.

Table 1. Major crops grown in the parishes sampled for the Louisiana ground water survey

Sample	Parish	Major Crops
1	Morehouse	Cotton, Soybeans, Rice
2	Caldwell	Cotton, Soybeans
3	Franklin	Cotton, Soybeans
4	Tensas	Cotton, Soybeans
5	Bossier	Cotton, Soybeans, Cattle
6	Natchitoches	Cotton, Soybeans, Cattle
7	Avoyelles	Corn, Cotton, Soybeans, Sweet Potatoes
8	Tangipahoa	Dairy Cattle, Nursery Plants
9	Acadia	Rice, Soybeans
10	Iberia	Sugarcane
11	Lafourche	Sugarcane
12	Plaquemines	Citrus, Vegetables

Table 2. Well discriptions for the Louisiana ground water survey.

Sample Number	Number of Persons Served	Uses
1	20	Drinking, cooking, bathing
2	4	Drinking, cooking, irrigation
3	2	Drinking, cooking, bathing, irrigation
4	0	Irrigation, water livestock
5	0	Irrigation, water livestock
6	0	Irrigation, water livestock
7	6	Drinking, cooking, bathing
8	20	Drinking, irrigation
9	5	Drinking, cooking, bathing
10	20	Drinking, cooking, bathing, irrigation
11	10	Drinking, washing
12	4	Bathing

Table 3. Detection limits for 22 pesticides analyzed by GLC.

Pesticide	Limit of Detection (ppb)
acifluorfen	0.83
alachlor	0.11
aldicarb	30.00
atrazine	0.41
bentazon	0.41
bromacil	0.42
butylate	0.38
carbofuran	9.60
cyanazine	0.15
DCPA	0.04
diphenamid	0.52
dicamba	0.01
dinoseb	0.16
diuron	1.70
fluometuron	3.70
methomyl	3.90
metolachlor	0.28
metribuzin	0.04
picloram	0.26
simazine	0.84
terbacil	0.42
2,4,5-T	0.05

Results and Conclusions

The laboratory results indicate that pesticides were found in 2 of the 12 samples. Cyanazine and alachlor were detected in one well each from Morehouse Parish and Franklin Parish respectively. Both wells were private drinking water wells located on farms. Concentrations were below the EPA established standards for these pesticides. The samples were also analyzed for nitrates. Nitrates were found in 4 wells located in Natchitoches, Tangipahoa, Lafourche, and Plaquemines Parishes. The sample collected from Plaquemines Parish was in excess of the EPA established MCL for nitrates.

The authors concluded that conditions exist within the State of Louisiana that allow pesticide to contmainate ground water. The results of the 1987 survey indicate that pesticides have containated ground water in trace amounts in northeast Louisiana.

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PESTICIDE SAMPLING IN THE STATE OF LOUISIANA

PESTICIDE	PARISH	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	NUMBER OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
2,4,5-T	ACADIA	1987/9	1	0	0	1	0	0	
	IBERIA	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			3	0	0	3	0	0	
Acifluorfen	ACADIA	1987/9	1	0	0	1	0	0	
	AVOYELLES	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			3	0	0	3	0	0	
Alachlor	AVOYELLES	1987/9	1	0	0	1	0	0	
	BOSSIER	1987/9	1	0	0	1	0	0	
	CALDWELL	1987/9	1	0	0	1	0	0	
	FRANKLIN	1987/9	1	0	1	1	0	1	0.28
	MOREHOUSE	1987/9	1	0	0	1	0	0	
	NATCHITOCHES	1987/9	1	0	0	1	0	0	
	TENSAS	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			7	0	1	7	0	1	0.28
Aldicarb	AVOYELLES	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Atrazine	AVOYELLES	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Bentazon	ACADIA	1987/9	1	0	0	1	0	0	
	AVOYELLES	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			3	0	0	3	0	0	

PESTICIDE SAMPLING IN THE STATE OF LOUISIANA

PESTICIDE	PARISH	DATE (YEAR/MONTH)	WELL RESULTS: TOTAL WELLS SAMPLED	WELL RESULTS: # OF POSITIVE WELLS ≥ MCL	WELL RESULTS: # OF POSITIVE WELLS < MCL	SAMPLE RESULTS: TOTAL # SAMPLES	SAMPLE RESULTS: NUMBER OF POSITIVE SAMPLES ≥ MCL	SAMPLE RESULTS: NUMBER OF POSITIVE SAMPLES < MCL	RANGE OF CONCENTRATIONS (µg/l)
Bromacil	PLAQUEMINES	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Butylate	AVOYELLES	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Carbofuran	ACADIA	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			2	0	0	2	0	0	
Cyanazine	BOSSIER	1987/9	1	0	0	1	0	0	
	CALDWELL	1987/9	1	0	0	1	0	0	
	FRANKLIN	1987/9	1	0	0	1	0	0	
	MOREHOUSE	1987/9	1	0	1	1	0	1	0.18
	NATCHITOCHES	1987/9	1	0	0	1	0	0	
	TENSAS	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			6	0	1	6	0	1	0.18
DCPA	TANGIPAHOA	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Dicamba	TANGIPAHOA	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Dinoseb	ACADIA	1987/9	1	0	0	1	0	0	
	AVOYELLES	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			3	0	0	3	0	0	
Diphenamid	TANGIPAHOA	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF LOUISIANA

PESTICIDE	PARISH	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	NUMBER OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Diuron	AVOYELLES	1987/9	1	0	0	1	0	0	
	BOSSIER	1987/9	1	0	0	1	0	0	
	CALDWELL	1987/9	1	0	0	1	0	0	
	FRANKLIN	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
	MOREHOUSE	1987/9	1	0	0	1	0	0	
	NATCHITOCHES	1987/9	1	0	0	1	0	0	
	PLAQUEMINES	1987/9	1	0	0	1	0	0	
	TENSAS	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			9	0	0	9	0	0	
Fluometuron	BOSSIER	1987/9	1	0	0	1	0	0	
	CALDWELL	1987/9	1	0	0	1	0	0	
	FRANKLIN	1987/9	1	0	0	1	0	0	
	IBERIA	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
	MOREHOUSE	1987/9	1	0	0	1	0	0	
	NATCHITOCHES	1987/9	1	0	0	1	0	0	
	TENSAS	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			8	0	0	8	0	0	
Methomyl	AVOYELLES	1987/9	1	0	0	1	0	0	
	PLAQUEMINES	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			2	0	0	2	0	0	
Metolachlor	AVOYELLES	1987/9	1	0	0	1	0	0	
	BOSSIER	1987/9	1	0	0	1	0	0	
	CALDWELL	1987/9	1	0	0	1	0	0	
	FRANKLIN	1987/9	1	0	0	1	0	0	
	MOREHOUSE	1987/9	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF LOUISIANA

PESTICIDE	PARISH	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	NUMBER OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Metolachlor)	NATCHITOCHES	1987/9	1	0	0	1	0	0	
	TENSAS	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			7	0	0	7	0	0	
Metribuzin	AVOYELLES	1987/9	1	0	0	1	0	0	
	IBERIA	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			3	0	0	3	0	0	
Picloram	TANGIPAHO	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
SIMAZINE	AVOYELLES	1987/9	1	0	0	1	0	0	
	PLAQUEMINES	1987/9	1	0	0	1	0	0	
	TANGIPAHOA	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			3	0	0	3	0	0	
Terbacil	IBERIA	1987/9	1	0	0	1	0	0	
	LAFOURCHE	1987/9	1	0	0	1	0	0	
	PLAQUEMINES	1987/9	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			3	0	0	3	0	0	
GRAND TOTAL DISCRETE WELLS/SAMPLES			12	0	2	12	0	2	

STATE OF LOUISIANA
WELLS BY PARISH

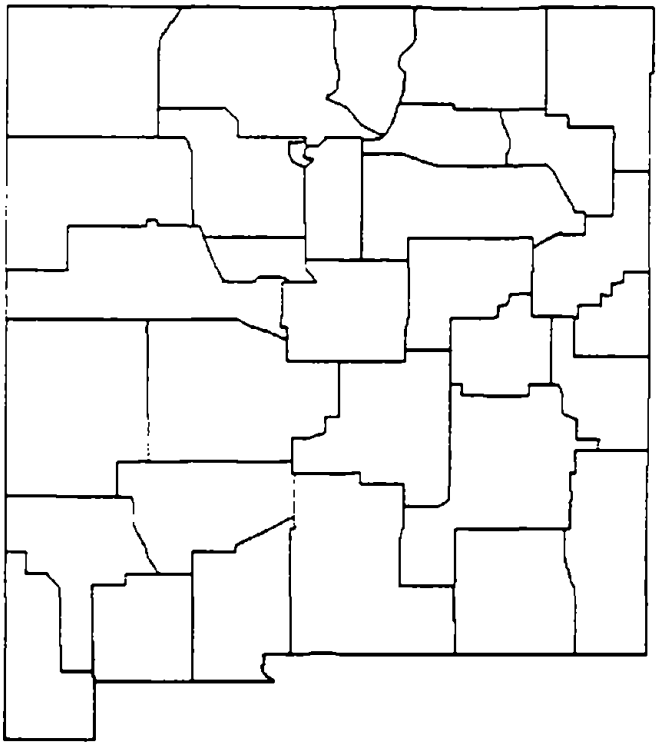
PARISH	TYPES OF WELLS									SOURCE OF CONTAMINATION (NUMBER OF WELLS)		
	DRINKING WATER			MONITORING			OTHER					
	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	NFU*	PS*	UNK*
Acadia	1	0	0	0	0	0	0	0	0	0	0	0
Avoyelles	1	0	0	0	0	0	0	0	0	0	0	0
Bossier	0	0	0	0	0	0	1	0	0	0	0	0
Caldwell	1	0	0	0	0	0	0	0	0	0	0	0
Franklin	1	0	1	0	0	0	0	0	0	0	0	1
Iberia	1	0	0	0	0	0	0	0	0	0	0	0
Lafourche	1	0	0	0	0	0	0	0	0	0	0	0
Morehouse	1	0	1	0	0	0	0	0	0	0	0	1
Natchitoches	0	0	0	0	0	0	1	0	0	0	0	0
Plaquemines	1	0	0	0	0	0	0	0	0	0	0	0
Tangipahoa	1	0	0	0	0	0	0	0	0	0	0	0
Tensas	0	0	0	0	0	0	1	0	0	0	0	0
TOTAL	9	0	2	0	0	0	3	0	0	0	0	2

* NFU=Known or Suspected Normal Field Use
PS =Known or Suspected Point Source
UNK=Unknown

Well Sampling by County

(Total Number of Wells with Pesticide Detections / Total Number of Wells Sampled)

New Mexico



Total Wells Sampled per County

	> 1000
	501 to 1000
	101 to 500
	51 to 100
	1 to 50
	No wells sampled

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NEW MEXICO

OVERVIEW OF STATE LEGISLATIVE AND ENVIRONMENTAL POLICIES REGARDING PESTICIDES IN GROUND WATER

New Mexico's Environmental Improvement Division (EID), part of New Mexico's Health and Environment Department, and the New Mexico Department of Agriculture have long been concerned about potential ground-water quality impacts resulting from pesticide use. New Mexico's Regulatory Order Number 5 was adopted pursuant to the Pesticide Control Act to control the use and disposal of pesticides. Although Regulatory Order Number 5 does not include specific provisions to protect ground-water quality, such provisions may be added in the future. The State Engineer Office has general supervision of the state's waters and has authority under several statutes to control activities affecting ground water. The State Corporation Commission administers several rules and regulations which have peripheral relevance to ground-water quality.

According to a 1986 report by the EID, monitoring of ground water for pesticides has been limited. Samples from public water wells taken as part of monitoring performed under the Safe Drinking Water Act (SDWA) have been analyzed for endrin, lindane, methoxychlor, toxaphene, 2,4-D, and 2,4,5-TP with no positive findings.

The EID began testing for fumigants in ground water in 1984. Two fumigant constituents, EDB and EDC have contaminated ground water as the result of gasoline spills. Otherwise, as of 1986, no fumigant biocides had been detected in New Mexico ground water.

Biocide analyses of ground water have been conducted as part of state hazardous waste and federal "Superfund" programs. According to the EID report, most analyses were negative. Minute quantities of BHC and DDE were detected in shallow ground water in an area where shallow ground water was also contaminated with petroleum products. PCP was found in shallow ground water near a timber handling facility.

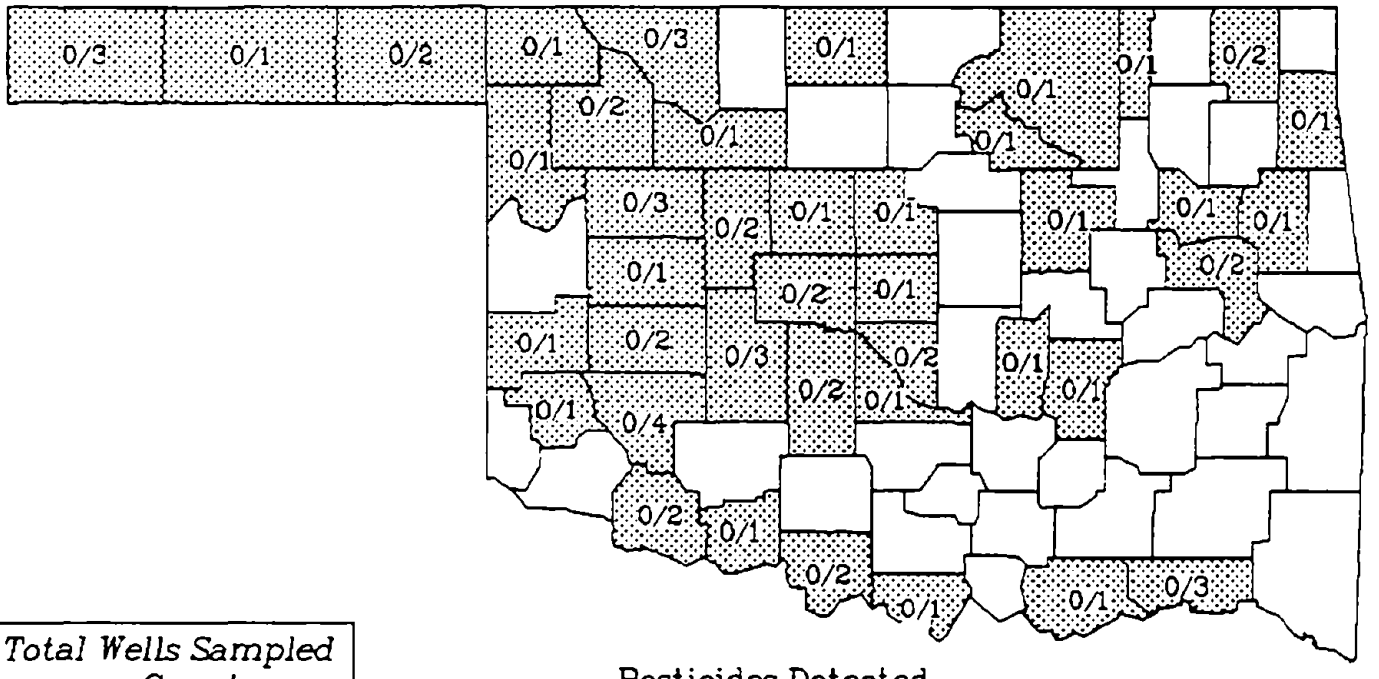
The EID report identified carbamate pesticides as a priority for testing; particularly aldicarb, and carbofuran, which have been used heavily in certain areas of the state. Picloram was also identified as a top priority for testing. Moderate priority has been given to testing for carbaryl, disulfoton, methomyl, monochrotophos, oxamyl, PCP, and tebuthiuron. The State Scientific Laboratory Division has since developed the capability to conduct analyses for carbamate pesticides.

No specific studies of pesticides in New Mexico's ground water were available at the time of this report.

Well Sampling by County

(Total Number of Wells with Pesticide Detections / Total Number of Wells Sampled)

Oklahoma



Total Wells Sampled per County

■	> 1000
▩	501 to 1000
⊠	101 to 500
▨	51 to 100
⊡	1 to 50
□	No wells sampled

Pesticides Detected

None

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OKLAHOMA

OVERVIEW OF STATE LEGISLATIVE AND ENVIRONMENTAL POLICIES REGARDING PESTICIDES IN GROUND WATER

The Oklahoma Department of Agriculture began development of a ground-water monitoring network in 1984 in response to concerns that, despite tight government regulations to control the misuse of pesticides, the proper use of pesticides in agriculture in the state might be contributing to ground-water contamination. The network of wells was derived from lists containing over 1400 wells originally selected and sampled by the Oklahoma Water Resources Board, the U.S. Geological Survey, and the Oklahoma Department of Health. Only wells located in alluvium and terrace soils were selected, and, using other specific criteria, the number of wells included in the ground-water monitoring network was reduced to 67. The network was used to monitor 26 agricultural chemicals in 1986.

Specific Ground-Water Quality Standards were established in 1989 by the Water Quality Division of the Oklahoma Water Resources Board. In addition to requirements for monitoring industrial contaminants, the standards required that all pesticides included in the Clean Water Act, Section 307(a) be monitored.

REPORTED STUDIES OF PESTICIDES IN GROUND WATER

Marak, Joseph, Plant Industry Division, Oklahoma State Department of Agriculture, Tel: 405-521-3864. **Exploratory Study on the Extent of Groundwater Contamination From Agricultural Use of Selected Pesticides in Oklahoma.** Study conducted from 1986 through 1987 (Final Report April 1987, pp. 38).

Primary Objective

The objectives of this study were to: (1) determine the extent of ground-water contamination in alluvium and terrace aquifers from past and current agricultural use of selected pesticides in Oklahoma; (2) determine if agricultural pesticide usage poses a threat to ground water; (3) contribute to the development of a national water quality data base; (4) develop recommendations for pesticide regulations in Oklahoma; and (5) make recommendations for further monitoring.

Design

A network of 67 wells was developed based on the following criteria: (1) soils favored the leaching of possible contaminants; (2) known pesticides had been applied; and (3) well construction was sufficiently adequate to preclude direct contamination by surface waters.

Wells were distributed across most of Oklahoma, and 41 of the 77 counties were represented. Sixty-five of the 67 wells, including 50 drinking water wells and 15 livestock and irrigation wells, were sampled for the following pesticides, based on suspected contamination:

Pesticide	No. Wells	Pesticide	No. Wells
Acephate	2	Dicamba	4
Alachlor	1	Dimethoate	1
Aldicarb	5	Disulfoton	1
Atrazine	6	Ethyl parathion	19
Atrazine +		Fensulfothion	1
Metolachlor	1	Malathion	5
Azinphos-methyl	1	MCPA	1
Benfluralin	1	Metolachlor	1
Bromacil	1	Metribuzin	1
Carbofuran	12	Picloram	3
Chlorothalonil	1	Simazine	1
Chlorpyrifos	2	Tebuthiuron	1
2,4-D	22	Terbutryn	1
Diazinon	2	Trifluralin	8

Water sampling procedures were developed using the "Handbook for Sampling and Sample Preservation of Water and Wastewater" EPA-600/4-82-029 as the basic reference. Samples were analyzed by the Oklahoma Department of Agriculture Laboratory, using GC/ECD with GC/MS as a confirmatory method. Specific limits of detection were not established for the 26 pesticides tested (although it was indicated in later correspondence that they ranged from 0.01 ppb to 1 ppb). Instead, water samples were spiked in the laboratory with varying levels of pesticides (from 0.025 ppb for dicamba to 73.0 ppb for chlorpyrifos) and recoveries were reported. Recoveries ranged from 27.0% for chlorothalonil to 122.9% for trifluralin.

Results and Conclusions

None of the pesticides listed above was recovered from any of the well samples collected in this study. The investigators concluded that there was no reason to suspect that pesticides, when properly used for agricultural purpose, would pose a current threat to Oklahoma ground water, and that pesticide enforcement, rules, regulations, laws, and label restrictions were adequate at that time.

PESTICIDE SAMPLING IN THE STATE OF OKLAHOMA

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
2,4-D	BEAVER	1986[A]	2	0	0	2	0	0	
	CADDO	1986	2	0	0	2	0	0	
	CHOCTAW	1986	3	0	0	3	0	0	
	CIMARRON	1986	2	0	0	2	0	0	
	CLEVELAND	1986	2	0	0	2	0	0	
	CREEK	1986	1	0	0	1	0	0	
	DEWEY	1986	3	0	0	3	0	0	
	ELLIS	1986	1	0	0	1	0	0	
	HARPER	1986	1	0	0	1	0	0	
	KINGFISHER	1986	1	0	0	1	0	0	
	MAJOR	1986	1	0	0	1	0	0	
	MUSKOGEE	1986	1	0	0	1	0	0	
	TEXAS	1986	1	0	0	1	0	0	
	WASHINGTON	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			22	0	0	22	0	0	
Acephate	CHEROKEE	1986	1	0	0	1	0	0	
	WOODWARD	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			2	0	0	2	0	0	
Alachlor	MAJOR	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Aldicarb	BECKHAM	1986	1	0	0	1	0	0	
	HUGHES	1986	1	0	0	1	0	0	
	MCCLAIN	1986	1	0	0	1	0	0	
	TILLMAN	1986	2	0	0	2	0	0	
TOTAL DISCRETE WELLS/SAMPLES			5	0	0	5	0	0	

PESTICIDE SAMPLING IN THE STATE OF OKLAHOMA

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Atrazine	CADDO	1986	1	0	0	1	0	0	
	CIMARRON	1986	1	0	0	1	0	0	
	CRAIG	1986	2	0	0	2	0	0	
	DELAWARE	1986	1	0	0	1	0	0	
	HARPER	1986	1	0	0	1	0	0	
	MUSKOGEE	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			7	0	0	7	0	0	
Azinphos-methyl	MUSKOGEE	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Benefin	MCCLAIN	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Bromacil	GRADY	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Carbofuran	BLAINE	1986	1	0	0	1	0	0	
	BRYAN	1986	1	0	0	1	0	0	
	CROCTAW	1986	1	0	0	1	0	0	
	CRAIG	1986	1	0	0	1	0	0	
	ELLIS	1986	1	0	0	1	0	0	
	GREER	1986	1	0	0	1	0	0	
	KINGFISHER	1986	1	0	0	1	0	0	
	MUSKOGEE	1986	1	0	0	1	0	0	
	OKLAHOMA	1986	1	0	0	1	0	0	
	OSAGE	1986	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF OKLAHOMA

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Carbofuran)	TEXAS	1986	1	0	0	1	0	0	
	WOODWARD	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			12	0	0	12	0	0	
Chlorothalonil	BECKHAM	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Chlorpyrifos	DEWEY	1986	1	0	0	1	0	0	
	WOODS	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			2	0	0	2	0	0	
Diazinon	MUSKOGEE	1986	1	0	0	1	0	0	
	WAGONER	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			2	0	0	2	0	0	
Dicamba	CLEVELAND	1986	1	0	0	1	0	0	
	COTTON	1986	1	0	0	1	0	0	
	GRANT	1986	1	0	0	1	0	0	
	JEFFERSON	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			4	0	0	4	0	0	
Dimethoate	CANADIAN	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Disulfoton	LOVE	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Fensulfothion	LOVE	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF OKLAHOMA

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Malathion	CHEROKEE	1986	1	0	0	1	0	0	
	SEMINOLE	1986	1	0	0	1	0	0	
	WAGONER	1986	1	0	0	1	0	0	
	WOODS	1986	1	0	0	1	0	0	
	WOODWARD	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			5	0	0	5	0	0	
MCPA	ELLIS	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Metolachlor	CRAIG	1986	1	0	0	1	0	0	
	DELAWARE	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			2	0	0	2	0	0	
Metribuzin	GRANT	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Parathion, ethyl	BEAVER	1986	2	0	0	2	0	0	
	BLAINE	1986	1	0	0	1	0	0	
	CADDO	1986	1	0	0	1	0	0	
	CANADIAN	1986	1	0	0	1	0	0	
	CUSTER	1986	1	0	0	1	0	0	
	DEWEY	1986	1	0	0	1	0	0	
	ELLIS	1986	1	0	0	1	0	0	
	GRADY	1986	1	0	0	1	0	0	
	JEFFERSON	1986	1	0	0	1	0	0	
	KINGFISHER	1986	1	0	0	1	0	0	
	KIOWA	1986	4	0	0	4	0	0	
	OKLAHOMA	1986	1	0	0	1	0	0	
	TEXAS	1986	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF OKLAHOMA

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/ MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Parathion, ethyl)	WASHITA	1986	1	0	0	1	0	0	
	WOODS	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			19	0	0	19	0	0	
Picloram	GRADY	1986	1	0	0	1	0	0	
	PAWNEE	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			2	0	0	2	0	0	
Simazine	CHEROKEE	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Tebuthiuron	CREEK	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Terbutryn	HARPER	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			1	0	0	1	0	0	
Trifluralin	CIMARRON	1986	1	0	0	1	0	0	
	CRAIG	1986	1	0	0	1	0	0	
	DELAWARE	1986	1	0	0	1	0	0	
	KIOWA	1986	1	0	0	1	0	0	
	LOVE	1986	1	0	0	1	0	0	
	MUSKOGEE	1986	1	0	0	1	0	0	
	WAGONER	1986	1	0	0	1	0	0	
	WASHITA	1986	1	0	0	1	0	0	
TOTAL DISCRETE WELLS/SAMPLES			8	0	0	8	0	0	
GRAND TOTAL DISCRETE WELLS/SAMPLES			65	0	0	105	0	0	

[A] All dates are Spring 1986.

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STATE OF OKLAHOMA
WELLS BY COUNTY

COUNTY	TYPES OF WELLS									SOURCE OF CONTAMINATION (NUMBER OF WELLS)		
	DRINKING WATER			MONITORING			OTHER					
	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	NFU*	PS*	UNK*
Beaver	1	0	0	0	0	0	1	0	0	0	0	0
Beckham	1	0	0	0	0	0	0	0	0	0	0	0
Blaine	2	0	0	0	0	0	0	0	0	0	0	0
Bryan	1	0	0	0	0	0	0	0	0	0	0	0
Caddo	2	0	0	0	0	0	1	0	0	0	0	0
Canadian	1	0	0	0	0	0	1	0	0	0	0	0
Cherokee	1	0	0	0	0	0	0	0	0	0	0	0
Choctaw	3	0	0	0	0	0	0	0	0	0	0	0
Cimarron	1	0	0	0	0	0	2	0	0	0	0	0
Cleveland	1	0	0	0	0	0	1	0	0	0	0	0
Cotton	1	0	0	0	0	0	0	0	0	0	0	0
Craig	2	0	0	0	0	0	0	0	0	0	0	0
Creek	1	0	0	0	0	0	0	0	0	0	0	0
Custer	1	0	0	0	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	1	0	0	0	0	0
Dewey	3	0	0	0	0	0	0	0	0	0	0	0
Ellis	0	0	0	0	0	0	1	0	0	0	0	0
Grady	0	0	0	0	0	0	2	0	0	0	0	0
Grant	1	0	0	0	0	0	0	0	0	0	0	0
Greer	1	0	0	0	0	0	0	0	0	0	0	0
Harper	1	0	0	0	0	0	0	0	0	0	0	0
Hughes	1	0	0	0	0	0	0	0	0	0	0	0
Jefferson	2	0	0	0	0	0	0	0	0	0	0	0
Kingfisher	1	0	0	0	0	0	0	0	0	0	0	0
Kiowa	3	0	0	0	0	0	1	0	0	0	0	0
Logan	1	0	0	0	0	0	0	0	0	0	0	0
Love	0	0	0	0	0	0	1	0	0	0	0	0
Major	1	0	0	0	0	0	0	0	0	0	0	0
McClain	1	0	0	0	0	0	0	0	0	0	0	0
Muskogee	2	0	0	0	0	0	0	0	0	0	0	0

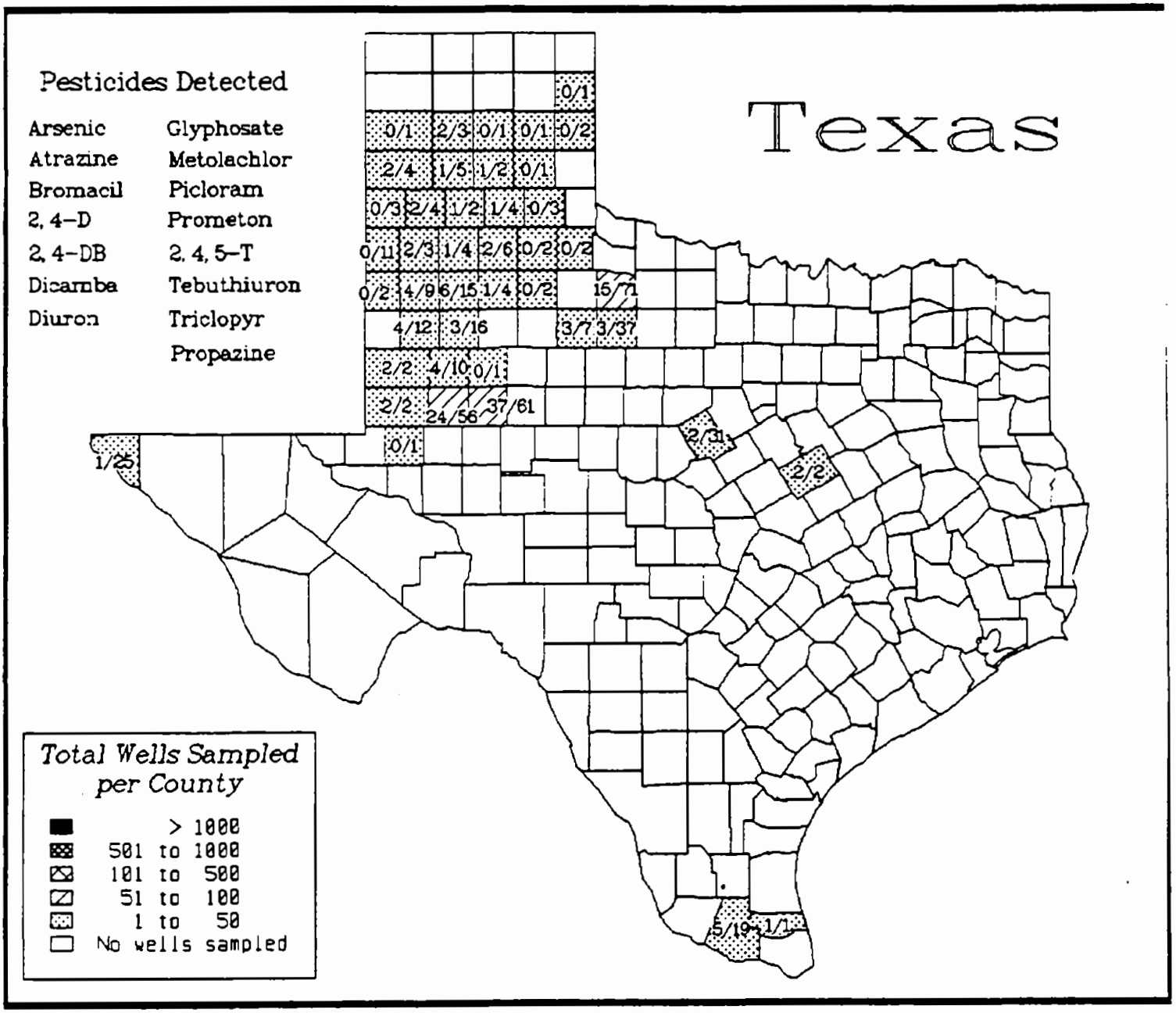
STATE OF OKLAHOMA
WELLS BY COUNTY

COUNTY	TYPES OF WELLS									SOURCE OF CONTAMINATION (NUMBER OF WELLS)		
	DRINKING WATER			MONITORING			OTHER					
	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	NFU*	PS*	UNK*
Oklahoma	1	0	0	0	0	0	0	0	0	0	0	0
Osage	1	0	0	0	0	0	0	0	0	0	0	0
Pawnee	1	0	0	0	0	0	0	0	0	0	0	0
Seminole	1	0	0	0	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	0	1	0	0	0	0	0
Tillman	2	0	0	0	0	0	0	0	0	0	0	0
Wagoner	1	0	0	0	0	0	0	0	0	0	0	0
Washington	1	0	0	0	0	0	0	0	0	0	0	0
Washita	2	0	0	0	0	0	0	0	0	0	0	0
Woods	2	0	0	0	0	0	1	0	0	0	0	0
Woodward	1	0	0	0	0	0	1	0	0	0	0	0
TOTAL	50	0	0	0	0	0	15	0	0	0	0	0

* NFU = Known or Suspected Normal Field Use
PS = Known or Suspected Point Source
UNK = Unknown

Well Sampling by County

(Total Number of Wells with Pesticide Detections / Total Number of Wells Sampled)



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TEXAS

OVERVIEW OF STATE LEGISLATIVE AND ENVIRONMENTAL POLICIES REGARDING PESTICIDES IN GROUND WATER

In 1987, the Texas Department of Agriculture (TDA) initiated a ground-water monitoring program. This was in response to the recognition of pesticides as potential ground-water contaminants and concern about the potential risks that pesticides in drinking water may pose to human health. The goals of this program were to address the concerns on the potential effects on water quality from the leaching of agricultural chemicals, especially in private rural wells which are not protected under existing public water supply regulations; and to collect information that may indicate types of agricultural and pesticide use practices, hydrogeological characteristics and well information that may be associated with pesticide contamination of ground water.

TDA is the lead State agency responsible for regulating pesticides. The Department's role in the protection of ground water is to ensure compliance with Federal and State laws and regulations, relating to pesticide distribution and use, through its pesticide registration and enforcement programs. TDA has primary enforcement responsibility for pesticide use violations under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The agency is responsible for regulating the distribution and use of pesticides is mandated under the Texas Agriculture Code.

REPORTED STUDIES OF PESTICIDES IN GROUND WATER

Texas Department of Agriculture (Dec 1990) News Release-**TDA Finds Five Pesticides and Arsenic in One-Third of 60 Wells Tested in Six Texas Counties.** Point of Contact: Max Woodfin, (512) 463-7664.

Objective

This survey was a follow-up to 1987 and 1988 studies by TDA that found pesticides in rural wells. This round of sampling explored the extent of contamination which was previously found previously and its causes. Data are being analyzed to determine if regulatory action is required to prevent further contamination.

Design

Sixty wells were sampled in six counties during September and October 1990: 39 in Knox, six in Haskell, seven in Stonewall, six in Comanche, and one each in Howard and Martin counties. Each county is an area of significant agricultural production, shallow groundwater

and pesticide use. These areas were targeted for study because they have a high groundwater pollution potential from agricultural sources.

Laboratory work for pesticide and arsenic analysis was done by TDA. Procedures routinely used to analyze water samples were capable of detecting more than 200 pesticides. The two wells sampled in Howard and Martin counties were also tested for arsenic.

Results

Twenty-one pesticide detections occurred in 18 of the 60 wells. Ten of the 18 were used for drinking water. Five pesticides were found. Prometon was found in 14 wells, atrazine in four wells, propazine in one well, metolachlor in one well, and dicamba in one well. Two wells contained both prometon and atrazine, and one well contained both atrazine and propazine. The majority of pesticide detections were at wells located on farmland near Knox City.

In all but two wells, the concentrations of pesticides found were well below the safe drinking water levels established by the U.S. Environmental Protection Agency. Atrazine was detected in one well at levels higher than the acceptable level. The Maximum Contaminant Level (MCL) for atrazine is 3 ppb. The average concentration in the well was found to be 17 ppb. Another atrazine-contaminated well had concentrations averaging 2.5 ppb. Both of the wells were used for drinking water.

The levels of arsenic found in the two wells in Howard and Martin counties were at or below the MCL for arsenic (50 ppb). The average concentrations of arsenic detected in the two wells were 50.0 and 42.5 ppb. Both of the wells were used for irrigation purposes.

Data are being examined to determine whether the contamination incidents are a result of normal pesticide application.

The results of this study indicate that pesticides, especially prometon and atrazine, are affecting a substantial number of wells in the study areas.

Note: Only the five pesticides identified by positive well detections from the News Release are listed in the State table.

Aurelius, Lee A., **Testing for Pesticide Residues in Texas Well Water** (1989) Texas Department of Agriculture. Studies conducted during 1987 and 1988. Point of Contact: Dr. Charles Ambrose, Texas Department of Agriculture, (512)463-7699.

Primary Objective

The primary objective of the study was to evaluate the potential effects on rural water quality from the leaching of agricultural chemicals.

Design

The geographical scope of the survey was focused on a few areas of the State that were determined to be sensitive to ground-water contamination based on hydrogeological conditions and agricultural practices.

The areas were selected for several reasons:

1) Near surface geology which might allow agricultural activities to negatively impact the quality of groundwater.
2) Portions of the areas are within the areas porposed by the Texas Water Commission in July 1986 as having or facing the potential for critical groundwater problems as related to overpumping or contamination.
3) Howard and Martin counties were targeted for further study after arsenic was found in wells (See **TDA 1984 & 1988**).
4) The Seymour alluvial aquifer has problems of nitrate contamination, which may be taken as an indicator of potential vulnerability to pesticide contamination of shallow rural wells.
5) Portions of the area are classified as having high groundwater pollution potential according to DRASTIC analysis.
6) All areas have substantial agricultural production.

The primary criteria for selection of individual wells included the following: (1) domestic use of water, (2) location of well near agricultural fields with a history of pesticide use, (3) presence of shallow water table (preferably less than 50 feet), (4) presence of soils that might be conducive to leaching or movement of agricultural chemicals into ground water, (5) protection of well from surface water runoff, (6) samples that could be collected near the wellhead before water passed through pressure tanks or prior to treatment, and (7) presence of high nitrate levels.

To obtain information about the physical characteristics of the well and local cropping and pesticide use patterns, TDA employees conducted an interview with the well owner or other person living at or near the property where the well was located. A well inventory questionnaire, which consisted of a base of questions for TDA staff to measure or discuss with the interviewee, was filled out for every well sampled.

Sampling Schedule

Beginning in the spring of 1987, TDA conducted a pilot study to include testing of 75 wells located within Comanche, Haskell and Knox counties. Five wells were found positive for pesticides and were retested for confirmational purposes approximately six months later. Additional follow-up sampling in Haskell and Knox counties was carried out in August 1988 and consisted of resampling three pesticide contaminated wells and collecting the first set of samples at an additional 13 wells.

Other geographical regions of Texas were also studied as part of the survey during 1988. The study included testing of 100 wells located in Dawson, El Paso, Hidalgo, Howard, Lynn, Martin and Terry counties.

Analyses

Pesticide analyses were conducted by TDA at the Pesticide Residue Laboratories located in Brenham and San Juan, Texas. The Brenham Lab tested organo-nitrogen, organo-phosphorus, and organo-chloride sample types using EPA Draft Methods #1 and #2. Methods used by the San Juan Lab included the EPA Draft Method #3 for chlorophenoxy herbicides, the PAM I, 212.2 test for carbamates, and the Silver Diethyldithiocarbamate method for total arsenic samples.

Pesticides screened for in water analyses:

ORGANO-NITROGEN		
TRIAZINES	ORGANO-PHOSPHATES	ORGANO-HALOGEN
Atrazine	Acephate	Alachlor
Cyanazine	Betasan	Aldrin
Prometon	Chlorpyrifos	Benefin
Prometryn	Demeton Methyl	Captafol
Propazine	Demeton-S Sulfone	Captan
Simazine	Diazinon	Chlordane
Velpar	Dimethoate	Chlorothalonil
	Disulfoton	Cypermethrin
	Disulfoton Sulfone	DDE
UREA DERIVATIVES	Dyfonate	DDT
Bromacil	Ethion	Dicofol
	Folex	Dieldrin
	Guthion	Endosulfan I
CARBAMATES	Malathion	Endosulfan II
Aldicarb	Nemacur	Endosulfan Sulfate
Aldicarb Sulfone	Parathion	Endrin
Aldicarb Sulfoxide	Parathion, Methyl	Ethalfluralin
Carbaryl	Phosalone	Fenvalerate
Carbofuran	Profenophos	Heptachlor
3-Hydroxycarbofuran	Trithion	Heptachlor Epoxide
Methomyl		HCH, alpha, beta,
Oxamyl		delta, gamma
		Methoxychlor
		Metolachlor
PHENOXYS		Norflurazon
2,4-D		Oxyfluorfen
2,4-DB		PCNB
2,4-DP		Pendimethalin
Dicamba		Permethrin, cis and
MCPA		trans
MCPB		Propachlor
MCPP		Tralomethrin
Picloram		Trifluralin
2,4,5-T		
Triclopyr		

Results and Conclusions
Nine pesticides were detected in 10 of the 188 wells. Pesticides detected were 2,4,5-T, 2,4-DB, metolachlor, dicamba, atrazine, prometon, bromacil, picloram, and triclopyr. Poor well construction, well location, mixing and loading practices, leaching as a result of normal use, and leaching combined with excessive rate of application were identified as potential causes of pesticide contamination of wells.

In addition, of the 110 wells tested for arsenic, 38 contained measurable levels of the compound. The source or cause of contamination of indvidual wells was uncertain. Contamination could be due to arsenic-based pesticides, naturally occurring arsenic or a combination of these sources.

Texas Department of Agriculture (1988) **Investigation of Arsenic Contamination of Groundwater Occurring Near Knott, Texas.**

_____ (1984) **Final Report on the Investigation of Arsenic Contamination of Ground Water Near Knott, Howard County, Texas** (Project No. CI-8401).

Point of Contact: Dr. Charles Ambrose, Texas Department of Agriculture, Stephen F. Austin State Office Building, 17th and Norh Congress Avenue, Austin TX 78701, (512)463-7699.

Primary Objective
The objective of the studies was to identify the level and extent of arsenic contamination and to determine the sources and routes of contamination.

Analytical Methodology for Arsenic Residues
Analyses for total arsenic in water and soil samples at the TDA Laboratory (San Juan, TX) utilized the Wilver Diethyldithiocarbamate method. Graphite-furnace atomic adsorption and hydride-furnace atomic adsorption were the methods used at the TDH Laboratory (Austin, TX) to determine total and soluble arsenic concentrations in water, soil, and samples of cotton gin trash. The BEG Laboratory (Austin, TX) used the graphite-furnace atomic adsorption procedure to analyze water samples for total arsenic. Adsorption studies and analyses for arsenic species were also conducted at the USDA Laboratory, Beltsville, MD.

Initial Study-Design:
The initial study, conducted between December 1983 and February 1984, sampled 101 wells near the city of Knott in Howard and Martin counties. Additionally, three sites were selected for soil sampling and five sites for cotton gin trash sampling. The detection limit was 0.025 mg/L [25 ug/l].

Samples from 99 of the 101 wells were not acidified with nitric acid prior to analyses by the laboratory. Thus, it is possible that a portion of the arsenic may have become insoluble and precipitated out. This may have resulted in lower analytical accuracy. Additional sampling of 22 of the 101 wells included addition of nitric acid.

Results:
The 23 contaminated wells found in the initial sampling were in an area immediately west, northwest, and southwest of Knott. Only two of the 23 wells were located outside a four-mile radius around Guitar Gin on the west side of Knott. The highest concentration of arsenic found in water was from a well located southeast and adjacent to the abandoned Guitar Gin. Cotton gin trash was piled next to the well with some gin trash packed around the well as insulation. Local residents indicated that an old cotton burr pit, 15 to 20 feet below ground, was within 60 to 90 ft of the well.

A pattern of contaminated wells occurred primarily west of Knott along FM 846, and north and south along the county road, one mile west of Guitar Gin. The four local cotton gins are located on or within a half mile of these roads. It was claimed by area residents that because of manpower and transportation limitations, gin trash was usually not hauled for any long distances from cotton gins unless requested. Furthermore, gin trash is dumped on piles in fields, or on the edges of fields when the soil is wet, and may set for months before it is spread on the soil. This may result in high localized concentrations of arsenic in contact with the soil. Additionally, when gin trash is spread on the soil with disks, it may not be distributed evenly across the field and high localized concentrations of arsenic may still occur. It is likely that it may be stacked and spread over only five or 10 percent of the area.

It was also discovered during the investigation that some well owners were using gin trash as winterizing material around their wells. Thus, it is conceivable that arsenic could readily enter the completed wells. The sites at which this occurred were not well-documented, however it was estimated that gin waste was packed around the plumbing of the well annulus at approximately 10 percent of the 101 wells.

The groundwater predominantly flows in a southeast direction, approximately parallel to FM 2230. Two groups of contaminated wells were closely parallel to the direction of groundwater movement, the group of wells along the county road and the group of wells near Knott Co-op Gin and Guitar Gin. A single area could not be identified, however, as the source of overall contamination.

Statewide and High Plains Region Surveys-Design:
In March 1984, the Texas Department of Agriculture conducted a limited statewide survey to determine the extent of arsenic contamination of groundwater in Texas. In this study, 61 water wells from 16 counties [grouped into six areas] were sampled on the basis of proximity to cotton production, shallowness of wells, and permeability of soils.

Wells were pumped five minutes before sample collection. Analyses were performed by TDA.

Results:
The only well in which arsenic was found above the 0.025 mg/l detection limit was in Willacy County, where the total arsenic level was 0.033 mg/l.

High Plains Survey-Design and Results:
As part of an independent study in cooperation with TDA, the Bureau of Economic Geology surveyed wells in the Texas High Plains to determine levels of arsenic, nitrate, and tritium. Concentrations were measured for 92 wells in 33 counties throughout the High Plains Region. The survey was carried out by BEG from December 1984 though July 1985. The detection limit for arsenic was 0.01 mg/l. Only one well, which was located close to Knott, near the county line between Howard and Martin counties, was shown to exceed the 0.05 mg/l tolerance level. The concentration observed in this well was 0.100 mg/l.

Other wells surveyed in Howard and Martin counties, located much farther south and southeast of Knott, were not found to contain arsenic. Wells sampled to the north and northwest of Knott in the area of Andrews, Gaines, Terry, and Lynn counties had levels of arsenic ranging from 0.012 to 0.035 mg/l. Another area, farther north and northwest of Knott in Hockley and Lubbock counties, also had elevated levels, with concentrations ranging from 0.011 to 0.017 mg/l. Wells in Swisher, Potter, Briscoe, and Armstrong counties in the northern part of the Texas High Plains also had elevated levels, with concentrations ranging from 0.011 to 0.017 mg/l.

Beginning in May 1984, 10 sites in Howard and Martin counties were selected for soil core sampling. Samples from each site were analyzed for total arsenic and nine of the sites were analyzed for soluble arsenic. Ground-water samples were obtained from one soil core site and during drilling of a new water well at a local farm. Water from the soil core site was taken at the 12-12.5 ft. level and contained an arsenic concentration of 0.256 mg/l. The water obtained during the drilling of the new water well did not contain detectable arsenic.

Analyses of Water Samples for Arsenic Species
To clarify the source of contamination, additional water samples were analyzed for arsenic species in June 1984. A minimum of two water samples from 10 wells were collected and analyzed for arsenic species. Samples were analyzed for arsenate, arsenite, cacodylate, methanearsonate and trimethylarsineoxide. Of these five compounds, the only species detected was arsenate. Based on these results and knowledge of the types of pesticides used around Knott, it appeared that the inorganic forms of arsenical pesticides, such as arsenic acid and calcium arsenate, were possible sources of contamination. Cotton gin waste, when containing high concentrations of residual arsenic, could also be a source of contamination when incorporated into the soil as an organic mulch, stored on the soil prior to incorporation, buried in pits, or used as insulating material around improperly completed wells.

Arsenic and Nitrate Contamination of Selected Wells
TDA also studied the variability of arsenic concentrations in individual wells over time. From the initial 101 wells, 17 were selected and monitored monthly from June to November 1984. To determine if a relationship existed between high nitrates and arsenic levels in

groundwater, the wells were also analyzed for nitrates in May and September 1984. Additionally, monthly precipitation data were studied to determine if seasonal changes in arsenic concentrations were related to precipitation events.

Of the 15 wells which exceeded the arsenic drinking water standard, four wells also exceeded the nitrate drinking water standard. The highest arsenic and nitrate levels both occurred in a well which was located adjacent to the abandoned Guitar Gin, where local residents claim that gin waste was buried.

Results also showed that arsenic concentrations varied over time. Concentrations were found to be highest in a greater percentage of wells during September. At that time arsenic levels peaked in seven wells. Arsenic acid is generally applied in October and November. Thus, it did not appear that the seasonal application was related to the higher concentrations observed during September. Due to higher precipitation during September, it was speculated that the rate of recharge and the amount of surface and subsurface runoff impacting open well bores may have affected the downward movement of residual arsenic.

Special Requests

Due to special requests from landowners in August and September, arsenic and nitrate data were collected for an additional nine wells near the Knott community. Seven wells had nitrate levels which exceeded the water quality standard. Five of the wells exceeded the water quality standard for arsenic.

Results and Conclusions

Ogallala Aquifer ground-water contamination near the City of Knott appears to be related to the long-term use of arsenical pesticides and cotton gin waste. Gin waste was found to contain high concentrations of residual arsenic from the cotton defoliant, arsenic acid. When waste containing high concentrations of residual arsenic is used as a soil amendment, arsenic may be leached out into the surrounding soil.

The environmental characteristics of arsenic, combined with the soil and hydrogeological conditions, the long-term use of arsenical pesticides and cotton gin waste, and the local agricultural practices indicate that arsenic has the potential for movement through the soil to groundwater. Additionally, many of the wells in the area do not adequately meet the standards set for well construction. This may provide an additional pathway for arsenic to contaminate groundwater, by way of surface and subsurface runoff, or by more direct entry when gin trash containing residual arsenic is packed around the wells.

McReynolds, Don. **Pesticide Sampling Effort Described.** High Plains Underground Water Conservation District, 2930 Avenue Q, Lubbock, TX 79405 (806)762-0181. Study conducted during the early summer of 1988 (20 pp.).

_____ (Nov 1988) **District Pesticide Sampling Procedures Described** in "The Cross Section" Vol. 34-No. 11, November 1988, High Plains Underground Water Conservation District No. 1, 2930 Avenue Q, Lubbock, TX 79405.

_____ (Feb 1989) Letter to Douglas Parsons, USEPA/OPP/EFED, Washington D.C. concerning the pesticide sampling project noted above.

Primary Objective

The primary goal of this project was to collect a sufficient number of ground-water samples for analysis of a selected group of pesticides within the District's service area. This sampling project was initiated to give an adequate indication of a need for further testing of the Ogallala Aquifer or to indicate a low priority to continue such a program.

Design

District-wide sampling with a limited number of samples collected within the District area of each county was determined to be the most cost effective method for achieving the goal of the project.

During August 1988, ninety wells were sampled and thirty-one composite samples were prepared for analysis from those samples. The wells whose samples were selected to produce individual composites were grouped as closely together as the well distribution and sampling capability would allow.

NOTE: The composite samples were counted as if each composite was a single well for the purposes of the Pesticides in Ground Water Database Report.

Owners and/or operators of wells that appeared to be appropriate for sampling purposes were contacted, and pertinent available data were collected. The owner or person familiar with the use of pesticides near the prospective wells to be sampled was asked to respond to a questionnaire regarding present and historical use of chemicals. Also included for this review was a list of the pesticide trade names for which analyses would be made. The person responding to the questionnaire was asked to indicate any use of these chemicals, method of application, and approximate period(s) of use. Wells tentatively selected to be sampled were visited to determine the capability of sample collection and to decide whether the well site or wellhead offered the possibility of point-source pollution. If it appeared that chemicals could have readily entered the well in the past, the prospective well was disqualified for sampling for this project. The main objective of this project was to test the aquifer water quality rather than test for point-source pollution.

The following pesticides were analyzed:

Pesticide	DL[A] (ppb)	Method	Pesticide	DL[A] (ppb)	Method
2,4-D	0.05	GC-ECD	Diuron	0.01 ppm	UV-VIS
Alachlor	0.05	GC-ECD	Glyphosate	0.02 mg/l	GC-NPD
Aldicarb sulfone	1 µg/l	GC-NPD	Metolachlor	0.05	GC-ECD
Arsenic acid	0.01 ppm	AA-HC	Paraquat	0.02 ppm	UV-VIS
Atrazine	0.20	GC-NPD	Phorate	1 µg/l	GC-NPD
Bromacil	0.10	GC-ECD	Picloram	1.0	GC-ECD
Chlorpyrifos	0.05	GC-ECD	Propazine	0.20	GC-NPD
DDT	0.05	GC-ECD	Silvex	0.05	GC-ECD
Diazinon	0.05	GC-ECD	Trifluralin	0.05	GC-ECD
Dicamba	0.05	GC-ECD			

[A] Detection Limit in ppb unless otherwise noted.

Results and Conclusions

Preliminary analysis results indicated the presence of a few of the historically-used agriculturally-related chemicals in well water sampled during this project. Most of the positive detections occurred in trace amounts, equivalent to a few parts per billion in concentration.

Because of the widespread use of pesticides in the District's service area over several years, the logical assumption was made that the potential existed for some of these chemicals to have reached the aquifer while the sampling project was being planned. It was probably unlikely that percolation of these chemicals through several feet of geological materials above the water table was a primary means of contamination. Direct access, by way of wells, is most likely the principal route of potential chemical contamination to the aquifer. Substandard well construction and careless use of chemicals near wells probably accounts for a large percentage of aquifer contamination.

Molofsky, Seth J (Aug 1985) **Ground-Water Evaluation From Test Hole Drilling Near Mission, Texas-Report 292.** Texas Department of Water Resources, PO Box 13087, Austin, TX 78711.

Primary Objective

This investigation was conducted to establish additional hydrogeological data in southwestern Hidalgo County where agricultural activities, including the widespread use of agricultural drainage wells, may be adversely affecting ground-water quality. The main objective of the project was to drill test wells which would provide accurate ground-water quality data for the near-surface aquifer system within the study area. Secondary objectives of this investigation include: (1) determination of the geometric and hydraulic characteristics of the aquifer; (2) investigation of the impact of agricultural drainage wells (injection-type) on ground-water quality; (3) refinement of test hole drilling and sampling techniques; and (4) determination of the potential for additional ground-water development.

Design

Water from sixty-four existing wells was subjected to standard chemical analysis, six of these wells were also analyzed for pesticides. Four of these wells were used for drinking water (three were public water supplies), one well was unused, and one well's usage was unknown. Five test wells were drilled on highway right-of-way. Water from these wells was also analyzed for pesticides. Well sample logs and geophysical logs such as gamma ray, gamma-gamma, and neutron logs were used to select intervals to be tested for water quality in the monitoring wells.

The following pesticides were analyzed for in the eleven wells:

2,4-D	DDE
2,4,5-T	Aldrin
Silvex [2,4,5-TP]	Chlordane
Heptachlor	Dieldrin
Heptachlor Epoxide	Endrin
Guthion	Methyl Parathion
Lindane	Dibutyl Phthalate
Methoxychlor	Diethylhexyl Phthalate
Parathion	Ethion [Azinphos-methyl]
Diazinon	Bromacil
DDT	Simazine
DDD	

Results and Conclusions

No pesticides were detected in any of the wells sampled.

Barnett, Earl; Bovey, R.K.; and Richardson, C.W., **Effect of Tebuthiuron on the Quality of Surface Ground Water in the Western Gulf Region.** Study conducted in 1975. (11 pp.) Point of Contact: Dr. R. W. Bovey, UDSA-ARS, Dept. of Range Science, Texas A&M University, College Station, TX 77843 (409)260-9238.

Primary Objective

The study was conducted with the following objectives:

1. Determine the effect of rainfall amounts,intensity, run-off rates and rainfall volumes on the movement of herbicides in surface water.
2. Determine the rate of herbicide movement, accumulation, and degradation in soils with respect to time after application.
3. Determine rates and amounts of herbicide movement in seepage flow.
4. Determine herbicide accumulation in plants as related to rainfall intensity and periodicity.

Design

Surface water runoff was monitored for tebuthiuron in the following three studies:

1. Small Watershed Plot (Reisel, Texas) - A small watershed was constructed approximately 20 feet in diameter on a natural grass pasture on 3% slope (no groundwater was sampled).
2. Brush Control Watershed Research (Reisel, Texas) - Tebuthiuron granules were applied to a precalibrated watershed supporting honey mesquite (ground-water samples included).
3. Bermudagrass Watershed Research (Temple, Texas) - In March 1975, three tebuthiuron treatments were applied to 1.5-acre duplicate watersheds established in coastal bermudagrass on a Houston black clay soil (no groundwater was sampled).

Ground Water-2. Brush Control Watershed Research

Two shallow ground-water monitoring wells located in the brush control watershed were sampled for tebuthiuron eight times between March and July 1975. Depth to the transient water table varied from 2.8 feet to more than 10 feet from the soil surface as the season progressed. The wells were not representative of wells used as domestic sources of water, as wells in the surrounding area are typically 50 to 100 feet deep.

The herbicide was applied March 11, 1975. Essentially no herbicide was found in the well samples on March 11 or March 14. A runoff producing storm totalling 1.12 inches occurred March 13. Samples from one of the wells on the treated watershed on March 19 contained 0.30 ppm of the herbicide. The concentration remained close to this value throughout the summer.

Results and Conclusions

Tebuthiuron would be expected to leach slowly in clay soils under relatively low rainfall conditions. It is very unlikely that a few inches of rainfall could cause sufficient vertical movement of tebuthiuron through the soil profile to result in significant quantities in transient ground water in only a few days or weeks after application. Therefore, other explanations must account for the presence of tebuthiuron in the water samples. It is

suggested that tebuthiuron moved in surface water through cracks in the soil or directly down the side of the well casing during runoff producing storms, and into the underlying gravel bed. Thus, the well acted as a trap for the surface runoff water containing tebuthiuron.

The presence of tebuthiuron in water samples from this artificial shallow well is no indication that contamination of transient ground water supplies was likely to occur under the proposed use conditions.

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PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ppb/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
2,4-D	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	1	3	0	1	57.1
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	1986/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	1	1	0	1	6.58
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/6-8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(2,4-D)	RANDALL	1988/8	2	0	0	2	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			229	0	2	440	0	2	6.58-57.1
►2,4-DB	COMANCHE	1987/5-6	25	0	1	50	0	2	0.22-0.23
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			187	0	1	390	0	2	0.22-0.23
2,4,5-T	COMANCHE	1987/5-6	25	0	1	50	0	2	2.66-2.99
		1987/12	1	0	1	2	0	2	2.82-2.92
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(2,4,5-T)	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			198	0	2	409	0	4	2.66-2.99
2,4,5-TP	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
TOTAL DISCRETE WELLS/SAMPLES			42	0	0	50	0	0	
Acephate	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLED	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Acephate)	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Alachlor	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	1986/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Alachlor)	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			219	0	0	423	0	0	
Aldicarb	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	20	0	0	40	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	13	0	0	26	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			182	0	0	380	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Aldicarb sulfone	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	1986/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	20	0	0	40	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	13	0	0	26	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Aldicarb sulfone)	RANDALL	1988/8	2	0	0	2	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			213	0	0	411	0	0	
Aldicarb sulfoxide	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	20	0	0	40	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	13	0	0	26	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			182	0	0	380	0	0	
Aldrin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Aldrin)	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Arsenic, inorganic[A]	ANDREWS	1985/2	2	0	2	2	0	2	32-35
	ARMSTRONG	1985/3	1	0	1	1	0	1	11
		1988/8	1	0	0	1	0	0	
	BAILEY	1984/12	8	0	0	8	0	0	
		1985/3	1	0	0	1	0	0	
		1988/8	2	0	0	2	0	0	
	BORDEN	1985/2	1	0	0	1	0	0	
	BRISCO	1985/3,7	4	0	1	4	0	1	17[C]
	CARSON	1985/2	1	0	0	1	0	0	
	CASTRO	1985/2	1	0	0	1	0	0	
		1988/8	3	0	0	3	0	0	
	COCKRAN	1985/2	1	0	0	1	0	0	
		1988/8	1	0	0	1	0	0	
	COTTLE	1985/7	2	0	0	2	0	0	C
	CROSBY	1985/2	2	0	0	2	0	0	
		1988/8	2	0	0	2	0	0	
	DAWSON	1988/6	9	3	1	18	4	3	40.0-90.0
	DEAF SMITH	1985/2	2	0	0	2	0	0	
		1988/8	2	0	0	2	0	0	
	DICKENS	1985/7	2	0	0	2	0	0	C
	DONLEY	1985/2	1	0	0	1	0	0	
	ECTOR	1985/2	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Arsenic, inorganic)	EL PASO	1988/4	5	0	1	10	0	2	27.0
	FLOYD	1985/3	3	0	0	3	0	0	
		1988/8	3	0	0	3	0	0	
	GAINES	1985/2	2	0	2	2	0	2	15-16
	GRAY	1985/2	1	0	0	1	0	0	
	HALE	1985/3	3	0	0	3	0	0	
		1988/8	1	0	0	1	0	0	
	HALL	1985/7	3	0	0	3	0	0	C
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HEMPHILL	1985/2	1	0	0	1	0	0	
	HIDALGO	1988/7	8	4	1	16	8	2	29.0-160.0
	HOCKLEY	1984/12	5	0	4	5	0	4	10-13
		1988/8	3	0	0	3	0	0	
	HOWARD	1983/12	61	14	11	68	15	11	30.0-600.0
		1984/1,2	26	20	1	134	97	6	29.0-680.0
		1984/6	3	2	1	3	2	1	29-81
		1985/2	3	0	0	3	0	0	
		1988/4	20	10	4	40	19	9	28.0-124.0
		1990/9-10	1	1	0	1	1	0	50
	LAMB	1985/3	1	0	0	1	0	0	
		1988/8	3	0	0	3	0	0	
	LUBBOCK	1984/12	2	0	1	2	0	1	12
		1985/1-3	10	0	4	10	0	4	10-17
		1988/8	3	0	0	3	0	0	
	LYNN	1985/2,3	2	0	0	2	0	0	
		1988/7,8	14	0	1	27	0	1	31.0

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Arsenic, inorganic)	MARTIN	1983/12	39	10	8	45	11	9	30.0-290
		1984/1,6-11	10	8	0	89	72	12	29-420
		1985/2,3	2	1	0	2	1	0	100
		1988/4	14	9	1	28	17	3	36.0-154.0
		1990/9-10	1	0	1	1	0	1	42.5
	MOTLEY	1985/7	2	0	0	2	0	0	C
	OLDHAM	1985/2	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1985/2	2	0	2	2	0	2	13-16
		1988/8	1	0	0	1	0	0	
	RANDALL	1985/2	3	0	0	3	0	0	
		1988/8	2	0	0	2	0	0	
	SWISHER	1985/2	2	0	1	2	0	1	15
	TERRY	1985/2	2	0	1	2	0	1	33
		1988/8	10	2	1	20	2	4	29.0-64.0
	WHEELER	1985/2	2	0	0	2	0	0	
	WILLACY	1984/3	1	0	1	1	0	1	33
	UNSPECIFIED COUNTIES[a]	1984/3	60	0	0	60	0	0	
TOTAL DISCRETE WELLS/SAMPLES			247	50	41	743	249	84	10.0-680.0
Atrazine	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	1	3	0	1	0.23
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
		1990/9-10	6	0	0	6	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	1986/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	1	2	0	1	1.08

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Atrazine)	EL PASO	1988/4-6	25	0	0	50	0	0	
	FLOYD	1988/8	3	0	1	3	0	1	0.27
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	1	0	50	2	0	18.3-20.9
		1987/12	2	1	0	4	2	0	4.9-5.7
		1988/8	8	0	0	16	0	0	
		1990/9-10	6	0	0	6	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
		1990/9-10	1	0	0	1	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	1	0	16	2	0	183.1-200.3
		1990/9-10	39	1	2	39	1	2	2.5-17
	LAMB	1988/8	3	0	1	3	0	1	0.21
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
		1990/9-10	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	STONEWALL	1990/9-10	7	0	1	7	0	1	0
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			279	3	7	483	7	7	0.21-200.3
Azinphos-methyl	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Azinphos -methyl)	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Benefin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Benefin)	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Bensulfide	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
BHC (α, β, δ)	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(BHC)	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Bromacil	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	1	3	0	1	0.10
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	1986/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	1	2	0	1	0.10
	EL PASO	1988/4-6	25	0	0	50	0	0	
	FLOYD	1988/8	3	0	1	3	0	1	0.10
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	8	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	1	40	0	2	1.77-2.0

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Bromacil)	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	1	1	0	1	0.11
	RANDALL	1988/8	2	0	1	2	0	1	0.27
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			230	0	6	442	0	7	0.10-2.0
Captafol	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Captan	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Carbaryl	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	20	0	0	40	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Carbaryl)	MARTIN	1988/4	13	0	0	26	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			182	0	0	380	0	0	
Carbofuran	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	20	0	0	40	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	13	0	0	26	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			183	0	0	380	0	0	
3-Hydroxy carbofuran	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	20	0	0	40	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(3-Hydroxy carbofuran)	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	13	0	0	26	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			182	0	0	380	0	0	
Carbophenothion	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	8	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Chlordane	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Chlordane)	(HASKELL)	1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Chlorothalonil	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Chlorpyrifos	ARMSTRONG	1988/8	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE (YEAR/MONTH)	WELL RESULTS: TOTAL WELLS SAMPLED	WELL RESULTS: # OF POSITIVE WELLS ≥ MCL	WELL RESULTS: # OF POSITIVE WELLS < MCL	SAMPLE RESULTS: TOTAL # SAMPLES	SAMPLE RESULTS: # OF POSITIVE SAMPLES ≥ MCL	SAMPLE RESULTS: # OF POSITIVE SAMPLES < MCL	RANGE OF CONCENTRATIONS (ug/l)
(Chlorpyrifos)	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	1986/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			219	0	0	423	0	0	
Cyanazine	COMANCHE	1987/5-6	25	0	0	50	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Cyanazine)	(COMANCHE)	1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Cypermethrin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
DDT	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	86/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			219	0	0	442	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
DDD	HIDALGO	1983/6-8	11	0	0	19	0	0	
TOTAL DISCRETE WELLS/SAMPLES			11	0	0	19	0	0	
DDE	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Demeton-methyl	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Demeton-methyl)	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Demeton-S-Sulfone	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Diazinon	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Diazinon)	HOCKLEY	1988/8	3	0	0	3	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
TOTAL DISCRETE WELLS/SAMPLES			42	0	0	50	0	0	
Dibutyl phthalate	HIDALGO	1983/6-8	11	0	0	19	0	0	
TOTAL DISCRETE WELLS/SAMPLES			11	0	0	19	0	0	
Dicamba	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
		1990/9-10	6	0	0	6	0	0	
	CROSBY	1988/8	2	0	1	2	0	1	0.06
	DAWSON	86/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	1	50	0	2	0.82-0.94
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
		1990/9-10	6	0	1	6	0	1	D
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Dicamba)	HOWARD	1988/4	20	0	0	40	0	0	
		1990/9-10	1	0	0	1	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
		1990/9-10	39	0	0	39	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
		1990/9-10	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	STONEWALL	1990/9-10	7	0	0	7	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			278	0	3	481	0	4	0.06-0.94
Dichlorprop	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Dichlorprop)	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			187	0	0	390	0	0	
Dicofol	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Dieldrin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Dieldrin)	(KNOX)	1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	411	0	0	
Dimethoate	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Dioctyl phthalate (Diethylhexyl phthalate)	HIDALGO	1983/6-8	11	0	0	19	0	0	
TOTAL DISCRETE WELLS/SAMPLES			11	0	0	19	0	0	
Disulfoton	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Disulfoton)	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Disulfoton sulfone	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Diuron	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	1	3	0	1	0.01
	LYNN	1988/8	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	1	1	0	1	0.02
	RANDALL	1988/8	2	0	0	2	0	0	
TOTAL DISCRETE WELLS/SAMPLES			31	0	2	31	0	2	0.01-0.02
Endosulfan I	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Endosulfan I)	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Endosulfan II	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6,12	27	0	0	54	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Endosulfan sulfate	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Endosulfan sulfate)	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Endrin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Ethalfluralin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCEN-TRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Ethalfluralin)	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Ethion	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Fenamiphos	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Fenamiphos)	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Fenvalerate	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Fonofos	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
*Glyphosate	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	LAMB	1988/8	3	0	1	3	0	1	150.0
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Fenamiphos)	RANDALL	1988/8	2	0	0	2	0	0	
TOTAL DISCRETE WELLS/SAMPLES			31	0	1	31	0	1	150.0
Heptachlor	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Heptachlor epoxide	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-1986/8	11	0	0	11	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Heptachlor epoxide)	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	403	0	0	
Hexazinone	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Lindane (gamma-BHC)	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Lindane)	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Malathion	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
MCPA	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(MCPA)	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			187	0	0	390	0	0	
MCPB	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			187	0	0	390	0	0	
Mecoprop	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Mecoprop)	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			187	0	0	390	0	0	
Methomyl	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	13	0	0	26	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			182	0	0	390	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
Methoxychlor	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Metolachlor	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	1	50	0	2	5.3-5.7
		1987/12	1	0	0	2	0	0	
		1990/9-10	6	0	1	6	0	1	2
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	86/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Metolachlor)	(HASKELL)	1988/8	8	0	0	16	0	0	
		1990/9-10	6	0	0	6	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
		1990/9-10	1	0	0	1	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
		1990/9-10	39	0	0	39	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
		1990/9-10	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	STONEWALL	1990/9-10	7	0	0	7	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			279	0	2	483	0	3	5.3-5.7
Norflurazon	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Norflurazon)	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Oxamyl	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	13	0	0	26	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			182	0	0	390	0	0	
Oxyfluorfen	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Oxyfluorfen)	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Paraquat	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
TOTAL DISCRETE WELLS/SAMPLES			31	0	0	31	0	0	
Parathion, ethyl	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Parathion, ethyl)	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	411	0	0	
Parathion, methyl	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Parathion, methyl)	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	411	0	0	
PCNB	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Pendimethalin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Pendimethalin)	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Permethrin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Phorate	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Phorate)	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
TOTAL DISCRETE WELLS/SAMPLES			31	0	0	31	0	0	
Phosalone	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Picloram	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Picloram)	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	86/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	24	0	0	48	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	1	27	0	2	1.48-3.15
	MARTIN	1988/4	14	0	0	28	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			218	0	1	421	0	2	1.48-3.15
Profenofos	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Profenofos)	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Prometon	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
		1990/9-10	6	0	0	6	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
		1990/9-10	6	0	0	6	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
		1990/9-10	1	0	0	1	0	0	
	KNOX	1987/5-6	25	0	2	50	0	4	5.2-28.4
		1987/11	2	0	2	4	0	4	23.3-29.6
		1988/8	8	0	2	16	0	4	1.9-4.6
		1990/9-10	39	0	12	39	0	12	D
	LYNN	1988/6-7	13	0	0	26	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Prometon)	MARTIN	1988/4	14	0	0	28	0	0	
		1990/9-10	1	0	0	1	0	0	
	STONEWALL	1990/9-10	7	0	2	7	0	2	0
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			248	0	17	452	0	26	1.9-29.6
Prometryn	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Propachlor	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Propachlor)	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Propazine	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1990/9-10	6	0	0	6	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1990/9-10	6	0	0	6	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	
	HOWARD	1990/9-10	1	0	0	1	0	0	
	KNOX	1990/9-10	39	0	1	39	0	1	0
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	1	0	0	1	0	0	
	MARTIN	1990/9-10	1	0	0	1	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Propazine)	STONEWALL	1990/9-10	7	0	0	7	0	0	
TOTAL DISCRETE WELLS/SAMPLES			91	0	1	91	0	1	D
Simazine	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1983/6-8	11	0	0	19	0	0	
		1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			199	0	0	411	0	0	
Tebuthiuron	MCLENNAN	1975/3-7	2	0	2	16	0	13	trace-380.0
TOTAL DISCRETE WELLS/SAMPLES			2	0	2	16	0	13	trace-380.0
Tralomethrin	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/L)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	≤ MCL		≥ MCL	≤ MCL	
(Tralomethrin)	(HASKELL)	1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Fribufos	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			188	0	0	392	0	0	
Triclopyr	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	DAWSON	1988/6	10	0	0	20	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (ug/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Triclopyr)	EL PASO	1988/4-6	24	0	0	48	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LYNN	1988/6-7	13	0	0	26	0	0	
	MARTIN	1988/4	14	0	1	27	0	1	0.58
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			187	0	1	389	0	1	0.58
Trifluralin	ARMSTRONG	1988/8	1	0	0	1	0	0	
	BAILEY	1988/8	2	0	0	2	0	0	
	CASTRO	1988/8	3	0	0	3	0	0	
	COCHRAN	1988/8	1	0	0	1	0	0	
	COMANCHE	1987/5-6	25	0	0	50	0	0	
		1987/12	1	0	0	2	0	0	
	CROSBY	1988/8	2	0	0	2	0	0	
	DAWSON	1986/6	10	0	0	20	0	0	
	DEAF SMITH	1988/8	2	0	0	2	0	0	
	EL PASO	1988/4-6	25	0	0	50	0	0	
	FLOYD	1988/8	3	0	0	3	0	0	
	HALE	1988/8	1	0	0	1	0	0	
	HASKELL	1987/6	25	0	0	50	0	0	
		1987/12	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	HIDALGO	1988/7	8	0	0	16	0	0	
	HOCKLEY	1988/8	3	0	0	3	0	0	

PESTICIDE SAMPLING IN THE STATE OF TEXAS

PESTICIDE	COUNTY	DATE	WELL RESULTS			SAMPLE RESULTS			RANGE OF CONCENTRATIONS (µg/l)
			TOTAL WELLS SAMPLED	# OF POSITIVE WELLS		TOTAL # SAMPLES	# OF POSITIVE SAMPLES		
		YEAR/MONTH		≥ MCL	< MCL		≥ MCL	< MCL	
(Trifluralin)	HOWARD	1988/4	20	0	0	40	0	0	
	KNOX	1987/5-6	25	0	0	50	0	0	
		1987/11	2	0	0	4	0	0	
		1988/8	8	0	0	16	0	0	
	LAMB	1988/8	3	0	0	3	0	0	
	LUBBOCK	1988/8	3	0	0	3	0	0	
	LYNN	1988/8	14	0	0	27	0	0	
	MARTIN	1988/4	14	0	0	28	0	0	
	PARMER	1988/8	3	0	0	3	0	0	
	POTTER	1988/8	1	0	0	1	0	0	
	RANDALL	1988/8	2	0	0	2	0	0	
	TERRY	1988/8	10	0	0	20	0	0	
TOTAL DISCRETE WELLS/SAMPLES			219	0	0	423	0	0	
GRAND TOTAL DISCRETE WELLS/SAMPLES			511	73	61	887	280	145	

NOTE: The samples counted in McReynolds, Don Pesticide Sampling Effort Described were composite samples of two to three well samples each. There were 90 well samples taken in August 1988 and thirty-one composites made.

▸ No MCL or Lifetime HA available.

[A] Inorganic arsenic includes arsenic, arsenic acid and arsenate.

[B] In TDA Investigation of Arsenic Contamination of Groundwater Occurring Near Knott, Texas (1988) the counties included in the study were grouped into six areas determined to be susceptible to ground-water contamination. Samples were collected from 61 water wells, approximately 10 per area, but wells sampled per county were not specified. The areas consisted of the following counties:
El Paso, Hudspeth, Culbertson
Hale, Lubbock, Lynn
Knox, Haskell
Johnson, Hill
Robertson, Brazos, Burleson
Willacy, Cameron, Hidalgo.

[C] The level of detection for samples taken in July 1985 was 50 µg/l.

[D] The data in the TDA News Release-TDA Finds Five Pesticides and Arsenic in One-Third of 60 Wells Tested in Six Texas Counties did not include all the concentrations of detected pesticides. It also did not include the total number of samples taken. For the purposes of this table, it was assumed that one sample was taken per well.

STATE OF TEXAS
WELLS BY COUNTY

COUNTY	TYPES OF WELLS									SOURCE OF CONTAMINATION (NUMBER OF WELLS)		
	DRINKING WATER			MONITORING			OTHER					
	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	NFU*	PS*	UNK*
Andrews	0	0	0	0	0	0	2	2	0	2	0	0
Armstrong	0	0	0	0	0	0	2	1	0	1	0	0
Bailey	0	0	0	0	0	0	11	0	0	0	0	0
Borden	0	0	0	0	0	0	1	0	0	0	0	0
Briscoe	0	0	0	0	0	0	4	1	0	1	0	0
Carson	0	0	0	0	0	0	1	0	0	0	0	0
Castro	0	0	0	0	0	0	4	0	2	0	2	0
Cochran	0	0	0	0	0	0	2	0	0	0	0	0
Comanche	24	0	1	0	0	0	7	0	1	0	1	1
Cottle	0	0	0	0	0	0	2	0	0	0	0	0
Crosby	0	0	0	0	0	0	4	0	1	0	1	0
Dawson	9	3	1	0	0	0	1	0	0	0	0	4
Deaf Smith	0	0	0	0	0	0	4	0	2	0	2	0
Dickens	0	0	0	0	0	0	2	0	0	0	0	0
Donley	0	0	0	0	0	0	1	0	0	0	0	0
Ector	0	0	0	0	0	0	1	0	0	0	0	0
El Paso	22	0	1	0	0	0	3	0	0	0	0	1
Floyd	0	0	0	0	0	0	6	0	2	0	2	0
Gaines	0	0	0	0	0	0	2	2	0	2	0	0
Gray	0	0	0	0	0	0	1	0	0	0	0	0
Hale	0	0	0	0	0	0	4	0	1	0	1	0
Hall	0	0	0	0	0	0	3	0	0	0	0	0
Haskell	26	1	0	0	0	0	11	0	2	0	1	2
Hemphill	0	0	0	0	0	0	1	0	0	0	0	0
Hidalgo	10	2	0	5	0	0	4	2	1	0	5	0
Hockley	0	0	0	0	0	0	9	4	0	4	0	0
Howard	54	20	13	0	0	0	7	4	0	0	34	3
Knox	31	1	3	0	0	0	40	1	10	2	2	11
Lamb	0	0	0	0	0	0	3	0	2	0	2	0
Lubbock	0	0	0	0	0	0	15	5	1	5	1	0

STATE OF TEXAS
WELLS BY COUNTY

COUNTY	TYPES OF WELLS									SOURCE OF CONTAMINATION (NUMBER OF WELLS)		
	DRINKING WATER			MONITORING			OTHER					
	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	TOTAL SMPLD	≥ MCL	< MCL	NFU*	PS*	UNK*
Lynn	12	0	1	0	0	0	4	1	1	1	1	1
Martin	54	16	7	0	0	0	2	1	0	1	20	2
McLennan	0	0	0	2	0	2	0	0	0	2	0	0
Motley	0	0	0	0	0	0	2	0	0	0	0	0
Oldham	0	0	0	0	0	0	1	0	0	0	0	0
Parmer	0	0	0	0	0	0	3	0	0	0	0	0
Potter	0	0	0	0	0	0	3	2	0	2	1	0
Randall	0	0	0	0	0	0	5	0	1	0	1	0
Swisher	0	0	0	0	0	0	2	1	0	1	0	0
Stonewall	0	0	0	0	0	0	7	0	3	0	0	3
Terry	10	2	1	0	0	0	2	1	0	1	0	3
Wheeler	0	0	0	0	0	0	2	0	0	0	0	0
Willacy	0	0	0	0	0	0	1	0	1	0	0	1
Unspecified	0	0	0	0	0	0	60	0	0	0	0	0
TOTAL	252	45	28	7	0	2	252	28	31	25	77	32

* NFU = Known or Suspected Normal Field Use
PS = Known or Suspected Point Source
UNK = Unknown

Note: In Pesticide Sampling Effort Described (1988) it was noted that four of the 90 wells were drinking water wells, the rest were irrigation wells. As it was not stated precisely which well were the drinking water wells, it was impossible to locate them by county. Therefore, in this table, the distinction is ignored and all 90 wells were considered irrigation wells.

In the TDA news release, 10 of 16 wells with detections are drinking water, however the specific wells are not noted. For the purposes of this table, all 16 wells are listed as non-drinking water.

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
1-Naphthol				Insecticide	C
1,2,4-Trichlorobenzene		9	9	Herbicide	U,C
1,2-D	1,2-Dichloropropane				
1,2-Dichloroethane		5		Fumigant	S
1,2-Dichloropropane		5		Fumigant	C
1,3-D	Dichloropropene				
1,3-Dichloropropene	Dichloropropene				
2-Chloroallyl-diethyldithiocarbamate	CDEC				
2(2,4-Dichlorophenoxy) propionic acid	Dichlorprop				
2(2,4-DP)Diethylamine salt	Dichloroprop				
2,4-D		70		Herbicide	S,SR^{Pre}
2,4-DB				Herbicide	S,SR^{Pre}
2,4-Dichlorobenzoic acid				Possible degradate or impurity	
2,4-Dichlorophenoxyacetic acid	2,4-D				
2,4-Dinitrophenol				Acaricide insecticide	U,C
2,4-DP	Dichlorprop				
2,4,5-T		70		Herbicide	C,SR^{C}
2,4,5-Trichlorophenoxy-acetic acid	2,4,5-T				
2,4,5-TP		50		Herbicide	C,SR^{C}
2,4,6-Trichlorophenol	Trichlorophenol				
2,6-diethylaniline	Alachlor			Degradate	
3-Hydroxycarbofuran	Carbofuran			Degradate	
3-Ketocarbofuran & 3-Ketocarbofuran (phenol)	Carbofuran			Degradate	
3,5-Dichlorobenzoic acid	Pronamide			Degradate	
4-Nitrophenol	Parathion, methyl		60	Degradate Fungicide	S
4(2,4-Dichlorophenoxy) butyric acid	2,4-DB				
4(2,4-DB), Butoxyethanol ester	2,4-DB				

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
4(2,4-DB), Dimethylamine salt	2,4-DB				
5-Hydroxy dicamba	Dicamba			Degradate	
Acenaphthene				Insecticide Fungicide	S
Acephate				Insecticide	S
Acifluorfen				Herbicide	S
Acrolein				Fungicide Herbicide Antimicrobial	S,R
Acrylonitrile				Fumigant	C,R,SR[C]
Alachlor		2		Herbicide	S,R,SR[P]
Aldicarb		3	1	Insecticide Acaricide Fungicide Nematicide	S,R,SR[P]
Aldicarb Sulfone	Aldicarb	2	1	Degradate	
Aldicarb Sulfoxide	Aldicarb	4	1	Degradate	
Aldicarb, Total	Aldicarb	3		Parent + degradates	SR[P]
Aldrin				Insecticide	C,SR[C]
Ametryn		60	60	Herbicide	S
Aminocarb				Insecticide	U,C
Amitraz				Insecticide Acaricide	S,R,SR[C]
Amitrole				Herbicide	S,R[P]
Anilazine				Fungicide	S
Arsenic		50			
Arsenates, Arsenites	Arsenic			Insecticide Fungicide Herbicide	C SR[C]
Arsenic acid Arsenicals	Arsenic			Defoliant Insecticide	S,R SR[P]
Atraton	experimental discontinued triazine			Herbicide	C
Atrazine		3		Herbicide	S,R
Atrazine, dealkylated	Atrazine			Degradate	
Azinphos-ethyl				Insecticide	C
Azinphos-methyl				Insecticide	S,R
Banvel	Dicamba				

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (mg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Barban				Herbicide	C
Baygon	Propoxur				
Bendiocarb				Insecticide	S,R
Benefin	Benfluralin			Insecticide Herbicide	S
Benfluralin	Benefin				
Benomyl				Fungicide	S,SR[C]
Bensulide				Herbicide	S
Bentazon		20	20	Herbicide	S
Bentazon, sodium salt	Bentazon			Degradate	
BHC (α,β,δ)				Insecticide	C,SR[C]
BHC (Γ)	Lindane				
Bromacil			90	Herbicide	S
Bromide	Sodium bromide				
Bromoxynil				Herbicide	S
Bufencarb				Insecticide	C
Butachlor				Herbicide	C
Butylate			350	Herbicide	S
Captafol				Fungicide	C
Captan				Fungicide	S,SR[C]
Carbaryl			700	Insecticide	S
Carbendazim				Fungicide	C
Carbofuran		40	40	Insecticide Acaracide Fungicide Nematicide	S,R,SR[C]
Carbofuran phenol	Carbofuran			Degradate	
Carbofuran, total	Carbofuran			Parent + degradates	SR[C]
Carbon disulfide				Fumigant Fungicide	U
Carbon tetrachloride		5		Fire retardant in fumigant formulations	SR[C]
Carbophenothion				Insecticide Acaricide	C
Carbophenothion, methyl				Insecticide Acaricide	U

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (ug/l)	LHA (ug/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Carboxin			700	Fungicide	S
CDEC				Herbicide	C
Chloramben			100	Herbicide	U,C
Chlordane		2		Insecticide Termiticide	C,SR[C]
Chlordecone				Insecticide	C,SR[C]
Chlordimeform				Insecticide Acaricide Ovacide	C,SR[C]
Chlorfenac				Herbicide	U,C
Chlorfenson				Acaricide	U,C
Chloroallyl alcohol				Insecticide	C
Chlorobenzilate				Insecticide Acaricide	C,SR[C]
p-Chloro-m-cresol				Fungicide Antimicrobial	S
p-Chloro-o-cresol					
Chloroform		100		Fumigant	C,SR[P]
Chloroneb				Fungicide	S
Chloropicrin				Fumigant Warning agent	S,R
Chlorothalonil				Fungicide	S
Chloroxuron					C
Chlorpropham				Herbicide	S
Chlorpyrifos		20		Insecticide	S
Chlorpyrifos, methyl				Insecticide	S
Chlorsulfuron				Herbicide	S
Chlorthal dimethyl	DCPA				
Copper					
Copper salts	Copper			Insecticide Herbicide Antimicrobial Fungicide	some S some U
Copper oxides	Copper			Insecticide Herbicide Fungicide	S
Coumaphos				Insecticide	S
Crufomate				Insecticide	
Cyanazine			1	Herbicide	S,R,SR[C]

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Cyanide		200	200		
Cyanide, calcium or potassium	Cyanide			Rodenticide	U
Cyanide, sodium	Cyanide			Rodenticide	S,R
Cycloate				Herbicide	S
Cypermethrin				Insecticide	S,R
Cyprazine				Herbicide	C
Dacthal	DCPA				
Dacthal diacid	DCPA acid metabolites				
Dalapon		200	200	Herbicide	U,C
DBCP		0.2		Fumigant	C,R,SR[C]
DCBA	2,4-Dichlorobenzoic acid				
DCP	1,2-Dichloropropane				
DCPA			4000	Herbicide	S
DCPA acid metabolites	DCPA			Degradate	
D-D Mix	1,2-Dichloropropane and Dichloropropene				
DDT				Insecticide	C
DDD	DDT			Degradate	SR[C]
DDE	DDT			Degradate	
DDVP	Dichlorvos				
DEF	Tribufos			Insecticide Acaricide	C,R
Demeton				Insecticide Acaricide	C
Demeton-methyl				Insecticide Acaricide	C
Demeton-S			.	Degradate	
Demeton-S sulfone	Demeton-S			Degradate	
Des-ethyl atrazine	Atrazine			Degradate	
Des-isopropyl atrazine	Atrazine			Herbicide	C,R
Dialiate				Herbicide	C,R,SR[C]
Diazinon			0.6	Insecticide Fungicide Nematicide	S,SR[C]
Dibromochloropropane	DBCP				

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Dibutyl phthalate				Insect repellant	U,C
Dicamba			200	Herbicide	S
Dichlobenil				Herbicide	S
o-Dichlorobenzene		600	600	Antimicrobial	U
p-Dichlorobenzene		75	75	Insecticide Fungicide Rodenticide Antimicrobial	S
Dichloropropene[A]					
Dichloropropene				Nematicide Fumigant	S,R,SR[P]
Dichlorprop				Herbicide	S,SR[Pre]
Dichlorprop, butoxyethanol ester	Dichlorprop				
Dichlorvos				Insecticide	S,SR[P]
Dicofol				Insecticide Acaricide	S,SR[C]
Dicrotophos				Insecticide	S,R
Dieldrin				Insecticide	C,SR[C]
Diethylhexyl phthalate	Dioctyl phthalate				
Dimethoate				Insecticide Acaricide	S,SR[C]
Dinoseb		7	7	Herbicide	C,SR[C]
Dinitrocresol	DNOC				
Dioctyl phthalate				Acaricide	C
Dioxacarb					C
Dioxathion				Insecticide	C,R
Diphenamid			200	Herbicide	C
Diquat		20	. 20	Herbicide	S
Diquat dibromide and various salts	Diquat				
Disulfoton			0.3	Insecticide Acaricide	S,R
Disulfoton sulfone	Disulfoton			Degradate	
Disulfoton sulfoxide	Disulfoton			Degradate	
Diuron			10	Herbicide	S
DNPA				Fly larvicide	C

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (ug/l)	LHA (ug/l)	PESTICIDE CATEGORY	REGULATORY STATUS
DNOC				Insecticide Herbicide Fungicide Antimicrobial	U,C
DNOC, sodium salt	DNOC				
EDB	Ethylene dibromide				
EBDC compounds	Maneb, Mancozeb, Zineb				SR[C]
Endosulfan				Fungicide Antimicrobial	S
Endosulfan I	Endosulfan			Isomer	
Endosulfan II	Endosulfan			Isomer	
Endosulfan sulfate	Endosulfan			Degradate	
Endothall		100	100	Herbicide	S
Endrin		2	2	Insecticide	U,C,R,SR[C]
Endrin aldehyde	Endrin			Degradate	
EPN				Insecticide Acaricide	C,R
EPTC				Herbicide	S
Ethalfluralin				Herbicide	S,SR[C]
Ethion				Insecticide Acaricide	S,R
Ethoprop				Insecticide Fungicide Nematicide	S,R
Ethyl alcohol				Disinfectant	S
Ethylan				Insecticide	U,C,SR[C]
Ethylene bisdithiocarbamate compounds	Maneb, Mancozeb, Zineb				
Ethylene dibromide		0.05		Insecticide	C,R,SR[C]
Ethylene dichloride	1,2-Dichloroethane				
Ethylene thiourea	ETU				
Ethyl parathion	Parathion, ethyl				
Etridiazole				Fungicide	S
ETU	Maneb			Degradate	
Fenac	Chlorfenac				
Fenamiphos			2	Insecticide Fungicide Nematicide	S,R

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Fenamiphos sulfone	Fenamiphos			Degradate	
Fenamiphos sulfoxide	Fenamiphos			Degradate	
Fenarimol				Fungicide	S
Fenbutatin-oxide				Insecticide Acaricide	S
Fensulfothion				Insecticide Fungicide Nematicide	C,R
Fenthion				Insecticide	C
Fenuron				Herbicide	C
Fenvalerate				Insecticide	S,R
Fluazifop-butyl				Herbicide	S
Fluchloralin				Herbicide	S
Flumetralin				Herbicide	S
Fluometuron			90	Herbicide	S
Fluridone				Aquatic herbicide	S
Fonofos			10	Insecticide	S,R
Formaldehyde			1000	Fungicide Antimicrobial	U
Glyphosate		700	700	Herbicide	S
Glyphosate isopropylamine salt	Glyphosate				
Guthion	Azinphos-methyl				
HCH (α,β,δ)	BHC (α,β,δ)				
HCH (Γ)	Lindane				
Heptachlor		0.4		Insecticide	C,SR[C]
Heptachlor epoxide	Heptachlor	0.2		Degradate	
Hexachlorobenzene		1		Seed protectant	
Hexazinone			200	Herbicide	S
Hydroxyalachlor	Alachlor			Degradate	
Iprodione				Fungicide	S
Isobornyl thiocyanoacetate				Insecticide	C
Isofenphos				Insecticide Herbicide	S,R
Isopropalin				Herbicide	C

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (mg/l)	LHA (ug/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Kepone	Chlordecone				
Lindane		0.2	0.2	Insecticide	S,R,SR[C]
Linuron				Herbicide	S,SR[P]
Malathion			200	Insecticide	S
Malaoxon	Malathion			Degradate	
Mancozeb				Fungicide	S
Maneb				Fungicide	S
MCPA			10	Herbicide	some C, some S
MCPA acids, salts, esters	MCPA				
MCPB				Insecticide	S
MCPB salts, esters	MCPB				
MCPP salts, esters	Mecoprop				
MCPPA	Mecoprop				
Mecoprop				Herbicide	S
Mercury		2	2		SR[C]
Merphos				Fungicide Herbicide	U,C
Metalaxyl				Fungicide	S
Methamidophos				Insecticide Acaricide	S,R
Methazole				Herbicide	S
Methidathion				Insecticide Acaricide	S,R
Methiocarb				Insecticide Acaricide Molluscicide Rodenticide Bird repellant	S,R
Methomyl			•200	Insecticide	S,R
Methoxychlor		40	40	Insecticide Acaricide	S
Methyl bromide				Insecticide Antimicrobial	S,R
Methyl carbophenothion	Carbophenothion, methyl				
Methyl isothiocyanate				Insecticide Fungicide Herbicide	S,R
Methyl paraoxon	Parathion, methyl			Degradate	

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (mg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Methyl parathion	Parathion, methyl				
Methyl trithion	Carbophenothion, methyl				
Methylene chloride				Insecticide	U
Metolachlor			100	Herbicide	S
Metribuzin			200	Insecticide	S
Metribuzin DA	Metribuzin			Degradate	
Metribuzin DADK	Metribuzin			Degradate	
Metribuzin DK	Metribuzin			Degradate	
Mevinphos				Insecticide Acaricide	S,R
Mexacarbate				Insecticide	U,C
Mirex				Insecticide	C,SR[C]
Molinate				Herbicide	S
Molinate sulfoxide	Molinate			Degradate	
Monocrotophos				Insecticide Acaricide	C,R
Monuron				Herbicide	C,SR[C]
Naled				Insecticide Acaricide	S
Naphthalene			20	Insecticide	S
Napropamide				Insecticide	S
Naptalam				Herbicide	S
Neburon				Herbicide	C
Nemagon	DBCP				
Nitrofen				Herbicide	C
p-Nitrophenol	4-Nitrophenol				
Nonachlor	Chlordane			Impurity in formulation	
Norflurazon				Herbicide	S
Octyl bicycloheptene-dicarboximide				Insecticide Fungicide Antimicrobial	S
Ortho-dichlorobenzene	o-Dichlorobenzene				
Oryzalin				Herbicide	S
Ovex	Chlorfenson				

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Oxamyl		200		Insecticide Acaricide Fungicide Nematicide	S,R
Oxychlordane	Chlordane			Animal metabolite	
Oxydemeton-methyl				Insecticide Acaricide	S,R,SR[P]
Oxydisulfoton				Insecticide Acaricide	C
Oxyfluorfen				Herbicide	S,SR[C]
Para-chlorometacresol	p-Chloro-m-cresol				
para-Dichlorobenzene see p-Dichlorobenzene, listed at dichlorobenzene	p-Chloro-o-cresol				
Paraquat			30	Herbicide	S,R
Paraquat dichloride	Paraquat				
Parathion	Parathion, ethyl				
Parathion, ethyl				Insecticide	S,R,SR[C]
Parathion, methyl		2		Insecticide	S,R
PCNB				Fungicide	S,SR[C]
PCP	Pentachlorophenol				
Pebulate				Insecticide Herbicide	S
Pendimethalin				Herbicide	S
Pentachlorophenol		1		Insecticide Fungicide Antimicrobial	S,R,SR[P]
Permethrin				Insecticide	S,R
Perthane	Ethylan				
Phorate				Insecticide	S,R
Phorate sulfone	Phorate			Degradate	
Phorate sulfoxide	Phorate			Degradate	
Phoratoxon	Phorate			Degradate	
Phoratoxon sulfone	Phorate			Degradate	
Phoratoxon sulfoxide	Phorate			Degradate	
Phosalone				Insecticide Acaricide	U,R
Phosmet				Insecticide	S

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	HA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Phosmet oxygen analog	Phosmet			Degradate	
Phosphamidon				Insecticide	C,R
Picloram		500	500	Herbicide	S,R
Pirimicarb				Aphidicide	C
Pirimicarb sulfone	Pirimicarb			Degradate	
Profenofos				Insecticide	S,R
Profluralin				Herbicide	C
Promecarb				Insecticide	NR (in US)
Prometon			100	Herbicide Antimicrobial	S
Prometryn				Herbicide	S
Pronamide			50	Herbicide	S,R,SR[C]
Propachlor			90	Herbicide	S
Propanil				Herbicide	S
Propargite				Insecticide Acaricide	S
Propazine			10	Herbicide	C
Propham			100	Herbicide	C
Propoxur			3	Insecticide	S,SR[P]
Propyzamide	Pronamide				
Prothiofos	Prothiophos				
Prothiophos				Insecticide	NR
Pyrethrins				Insecticide Fungicide Antimicrobial	U
Pyriclor				Herbicide	C
Rennel				Insecticide	U,C,SR[C]
Rotenolone	Rotenone			Degradate	
Rotenone				Insecticide Acaricide Piscicide	S
Secbumeton				Herbicide	C
Sethoxydim				Herbicide	S
Siduron				Herbicide	S
Silvex	2,4,5-TP				
Simazine		1	4	Herbicide	S

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Simetone				Herbicide	NR
Simetryn				Herbicide	NR
Sodium bromide	Bromide			Insecticide Fungicide Herbicide Antimicrobial	S
Sodium cyanide	Cyanide				
Sulprofos				Insecticide	S,R
Swep				Herbicide	C
TCA and salts	Trichloroacetic acid				
TCE	Trichloroethene				
Tebuthiuron			500	Herbicide	S
Telone	Dichloropropene				
Terbacil			90	Herbicide	S
Terbufos			0.9	Insecticide Fungicide Nematicide	S,R
Terbufos sulfone	Terbufos			Degradate	
Terbuthylazine				Herbicide Algaecide	S
Terbutryn				Herbicide	C
Terrazole	Etridiazole				
Tetrachloroethylene		5		Fumigant	C
Tetrachlorvinphos				Insecticide	S
Tetradifon					U,C
Thanite	Isoboryl thiocyanoacetate				
Thiobencarb				Herbicide	S
Thiobencarb sulfoxide				Degradate	
Thiophanate				Fungicide	C
Thiophanate-methyl				Insecticide Fungicide	S,SR[C]
Tordon	Picloram				
Toxaphene		3		Insecticide	U,R,SR[C]
Traimethrin				Insecticide	S,R
Trans-nonachlor	chlordane			Impurity in formulation	
Triadimefon				Fungicide	S

PESTICIDE CROSS-REFERENCE TABLE

CHEMICAL NAME	REFERENCE	MCL (µg/l)	LHA (µg/l)	PESTICIDE CATEGORY	REGULATORY STATUS
Tribufos				Herbicide	S
Trichlorfon				Insecticide	S
Trichloroacetic acid				Herbicide	U
Trichlorobenzene	1,2,4-Trichlorobenzene				
Trichloroethene					
Trichloroethylene	Trichloroethene	5		Fumigant	C
Trichloromet(e)				Insecticide	C
Trichlorophenol				Fungicide Herbicide Antimicrobial	U,C
Trichlorophon	Trichlorfon				
Triclopyr				Insecticide Herbicide	S
Tricyclazole				Fungicide	NR
Trifluralin			5	Herbicide	S,SR,[C]
Trithion	Carbophenothion				
Tunic	Methazole				
Uracil/Urea				Antimicrobial	U
Vernolate				Herbicide	S
Vorlex	1,2-Dichloropropene, Dichloropropene, Methyl isothiocyanate				
Xylene		10000	10000	Insecticide Fungicide Herbicide Antimicrobial	U
Zineb				Insecticide Fungicide	C
Ziram				Insecticide Fungicide	U

SR[Pre] Presently in Pre-Special Review

SR[P] Special Review in progress

SR[C] Special Review completed

S Supported: The producer(s) of the pesticide has made commitments to conduct the studies and pay the fees required for reregistration, and is meeting those commitments in a timely manner.

PESTICIDE CROSS-REFERENCE TABLE

U Unsupported: The producer(s) of the pesticide has not made or honored a commitment to seek reregistration, conduct the necessary studies, or pay the requisite fees for reregistration of the product.

C Canceled: The active ingredient is no longer contained in any registered pesticide products.

R Restricted Use: The pesticide has been classified as a Restricted Use Pesticide under 40 CFR Part 1, Subpart 1. It is therefore restricted to use by a certified applicator, or by or under the direct supervision of a certified applicator.

[A] In Hawaii both dichloropropane and 1,2-dichloropropane appear in the data.

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS

At this time the Pesticides in Ground Water Database does not contain data from the National Survey of Pesticides in Drinking Water Wells (NPS). These data have been recently analyzed and published.[3] OPP is currently working on importing the results of the pesticide analyses, so that they will be available when the PGWDB becomes part of the Pesticide Information Network. The following is a short description of the NPS and a summary of findings from the NPS.

The NPS is a joint project of EPA's Office of Drinking Water and Office of Pesticide Programs. This survey is the first national study of pesticides, pesticide degradates and nitrate in drinking water wells. The Survey has two principal objectives: 1) to determine the frequency and concentration of pesticides and nitrate in drinking water wells nationally; and 2) to improve EPA's understanding of how the presence of pesticides and nitrate in drinking water wells is associated with patterns of pesticide use and the vulnerability of ground water to contamination. The focus of the Survey was on the quality of drinking water in wells, rather than on the quality of ground water, surface water or drinking water at the tap. The Survey was designed to yield valuable information on both the frequency and levels of pesticides, pesticide degradates and nitrate in rural domestic (private) and community (public) drinking water wells on a nationwide basis. The Survey was not designed to provide an assessment of pesticide contamination in drinking water wells at the local, county or State level.

More than 1300 wells were sampled, some in each State, for 127 analytes. Nitrate was the most commonly detected analyte in these wells. Based upon the NPS results EPA estimates that nitrate is present at or above the analytical minimum reporting limit of 0.15ug/L in about 52.1% or community wells, and 57% of rural wells nationwide.

The survey detected pesticides and pesticide degradates much less frequently than nitrate. Twelve of the 126 pesticides and degradates were found in the sampled wells. EPA estimates that 10.4% of community wells and 4.2% of rural domestic wells in the United States contain pesticides or pesticide degradates at or above the analytical minimum reporting limit. The two most commonly found pesticides were DCPA acid metabolites (degradate of dimethyl tetrachloroterphthalate) and atrazine. The following is a list of the pesticides found in each type of well in alphabetical order.

Community:	atrazine, DCPA acid metabolites, dibromochloropropane, dinoseb, hexachlorobenzene, prometon, simazine.
Rural Domestic:	alachlor, atrazine, bentazon, DCPA acid metabolites, dibromochloropropane, ethylene dibromide, ethylene thiourea, gamma-BHC (lindane), prometon, simazine.