



# NATIONAL PESTICIDE SURVEY

Project Update

March 1990

## NPS Completes Sampling

On February 19, 1990 the final sample was collected in EPA's National Survey of Pesticides in Drinking Water Wells. The two-year sampling effort concluded at a domestic well site in Lincoln County, South Dakota.

Since April 1988, EPA has sampled 566 community water system wells and 783 domestic wells -- some in every State, including Alaska and Hawaii. These wells were statistically selected to represent the nation's 13,000,000 domestic wells and 51,000 community water systems.

The Survey's goal is to develop national estimates of the frequency and concentration of pesticides in drinking water wells, and examine the relationships among pesticide contamination, groundwater vulnerability, and pesticide use.

## A Nationwide Effort

Planning and implementing the Survey required a lot of hard work and cooperation from all levels of government, citizens, community well owners and operators, the farm community, and private industry.

EPA Headquarters staff worked closely with the U.S. Department of Agriculture and U.S. Geologic Survey. In the field, staff in EPA's ten regional offices channeled information and coordinated sampling schedules. States took on the responsibility of sampling community water systems and notifying well owners and operators of sampling results. County extension agents provided pesticide use information for the area surrounding community and domestic wells, and county health officers were briefed on questions to expect from their constituents.

Because of the Survey's rigorous sampling protocol, before the sampling started, more than 300 State personnel participated in specifically designed NPS training courses at 54 different locations across the country.

The NPS sampling sites ranged from a domestic well with a rope and bucket to very sophisticated community water systems with hundreds of wells. The randomly selected wells took the sampling teams to colleges, correctional institutions, trailer parks, military installations, retirement villages, and a convent.

Our refusal rate was very low and samplers were welcomed. As a result, in addition to successfully collecting samples, thousands of questionnaires were filled out by well owners, operators, and local area experts. The questions covered well construction, pesticide use patterns, cropping, pesticide storage, and a description of the area around each well. This information will play an important role in the data analysis phase of the Survey.

The sampling teams had to be ingenious and persistent to get the job done. Once samples were taken, the bottles had to be packed in ice and shipped overnight to assure that all the samples reached the labs within 24 hours of collection. The Survey used a total of 27 tons of ice, begged or bought from local convenience stores, restaurants, and State labs. Surprisingly, ice was hardest to come by in Alaska! In Hawaii, the ice would have melted before it reached all the labs stateside, so the samples were first shipped to California, then re-iced and sent to the five participating NPS labs (including one across the continent in Florida).

Of course, an enormous number of bottles were also required to conduct the Survey. From start to finish, more than 30,000 bottles were shipped to samplers and then off to the labs after sampling was completed. A variety of vehicles were used to get all the boxes of sample bottles from a sampling site to the closest shipping office in one trip. The challenge was to determine what model passenger car had enough cargo space to accommodate a sampling team plus 5 to 8 boxes.

In Alaska, commercial and bush planes were required to fly the sample bottles, the sampler -- and ice -- from Anchorage to an Eskimo village in Bristol Bay, Alaska.

Before the field work ended, our samplers survived snowstorms in New England, Hurricane Hugo in South Carolina, and the earthquake in San Francisco. EPA extends a heartfelt thanks to everyone -- nationwide -- who lent a hand in the sampling effort.

## **Spreading the Word**

A joint project of EPA's Office of Drinking Water and Office of Pesticides Programs, the National Pesticide Survey is one of the most comprehensive surveys ever undertaken by the Agency. From the beginning, extensive outreach efforts were initiated, with briefings for industry, farm groups, environmentalists, Congressional staffs, and Governors' representatives.

Members of the NPS staff at EPA Headquarters are playing an active role in this outreach effort. Headquarters staff recently made presentations at the:

- Freshwater Foundation Annual Meeting in Minneapolis;
- National Drinking Water Advisory Council meeting in Washington, DC;
- Midwest Groundwater Protection meeting in Illinois;
- Integrated Pest Management Conference in Washington, DC;
- National Well Water Association Conference in Iowa;
- Association of American Pesticide Control Officials meeting in Washington, DC;
- American Society of Agricultural Engineers meeting in Washington, DC;
- Maryland Section of the Soil and Water Conservation Society meeting in Washington, DC;
- Friends of the Earth/Environment Policy Institute Annual Ground Water Conference in Iowa; and
- National Association of County Health Officers Executive Board meeting in Illinois.

For information on the National Pesticide Survey, please contact Jeanne Briskin, NPS Director, at:

National Pesticide Survey  
Office of Drinking Water (WH-550)  
U.S. Environmental Protection Agency  
401 M Street, S.W.  
Washington, D.C. 20406

## **What Did We Find?**

It is still too early to report final Survey results. Even though sampling has ended, the laboratories are still conducting their analyses.

Each NPS sample is tested for 127 different pesticides, pesticide by-products, and nitrates, using eight different laboratory methods and rigorous quality assurance procedures. This process -- from the time the bottle is filled at the sampling site to the time the testing results are complete -- takes approximately 16 weeks.

According to NPS Director Jeanne Briskin, a preliminary NPS report will be available this fall; it will consist of the most straightforward results available for both community and domestic wells, such as the percentage and number of wells in which at least one pesticide was found.

A final report is scheduled for winter 1990-1991. In addition to discussing policy issues, it will include relational analyses of information from the well owner questionnaires, and regression analysis, such as analyses of the relationship between aquifer vulnerability and pesticide use and pesticide contamination of wells.

## NPS Analytes

The following list identifies the 127 different analytes included in the National Pesticide Survey.

Acifluorfen*	1,2-Dichloropropane*	Metolachlor*
Alachlor*	cis-1,3-Dichloropropene*	Metribuzin*
Aldicarb*	trans-1,3-Dichloropropene*	Metribuzin DA
Aldicarb sulfone*	Dichlorprop	Metribuzin DADK
Aldicarb sulfonide*	Dichlorvos	Metribuzin DK
Aldrin	Dieldrin*	Mevinphos
Ametryn*	Dinoseb*	MGK 264
Atraton	Diphenamid*	Molinate
Atrazine*	Disulfoton*	Napropamide
Atrazine, dealkylated	Disulfoton sulfone	Neburon
Barban	Disulfoton sulfonide	Nitrates/Nitrites*
Baygon*	Diuron*	4-Nitrophenol
Bentazon*	EDB*	Nonflurazon
Bromacil*	Endosulfan I	Oxamyl*
Butachlor	Endosulfan II	PCP
Butylate*	Endosulfan sulfate	Pebulate
Carbaryl*	Eadrin*	cis-Permethrin
Carbofuran*	Eadrine aldehyde	trans-Permethrin
Carbofuran phenol	EPTC	Picloram*
Carbofuran phenol-3KET	Ethoprop	Prometon*
Carbofuran-3OH	Etridiazole	Prometryn
Carbonyl*	ETU*	Pronamide*
Chloramben*	Penamiphos*	Pronamide metabolite
Chlordane-alpha*	Penamiphos sulfone	Propachlor*
Chlordane-gamma*	Penamiphos sulfonide	Propanil
Chlornel	Pesamtol	Propazine*
Chlorobenzilate	Fluometuron*	Propham*
Chlorothalonil*	Fluridone	Simazine*
Chlorpropham	HCH-alpha	Simetryn
Cyanazine*	HCH-beta	Stirofos
Cycloate	HCH-delta	Sweep
2,4-D*	HCH-gamma	2,4,5-T*
Dalapon*	Heptachlor*	Tebuthiuron*
2,4-DB	Heptachlor epoxide*	Terbacil*
DBCP*	Heptachlorobenzene*	Terbufos*
DCEA	Hexachlorocyclopentadiene*	Terbutryn
DCEA diacid metabolite	5-Hydroxy Dicamba	2,4,5-TP*
4,4'-DDD	Lisuron	Triadimefon
4,4'-DDE	Mecphos	Tricyclazole
4,4'-DDT	Methocarb	Trifluralin*
Diazinon*	Methomyl*	Vernolate
Dicamba*	Methoxychlor*	
3,5-Dichlorobenzoic acid	Methyl parathion	

- \* These pesticides are of primary importance in the Survey because of their potential occurrence in drinking water wells. These "priority" pesticides were so designated because of their propensity to leach to ground water under normal use conditions, prior occurrence in ground water, high volumes of sales nationally, or health effects concerns.

United States  
Environmental Protection  
Agency  
Washington, D C 20460

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