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State's nitrates problem grows unchecked

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The water supply of more than 2 million Californians has been exposed to harmful levels of nitrates over the past 15 years, a period marked by lax regulatory efforts to contain the colorless and odorless contaminant, a California Watch investigation has found.

Nitrates are the most common groundwater contaminant in California and across the nation. A byproduct of nitrogen-based farm fertilizer, animal manure, wastewater treatment plants and leaky septic tanks, nitrates seep into the ground and can be expensive to extract.

The problem affects rural Californians and wealthier big-city water systems. State law requires public water systems to remove nitrates. But many rural communities don't have access to the type of treatment systems available in metropolitan areas.

Nitrates have been linked to "blue baby syndrome," in which an infant's oxygen supply is cut off.

Statewide, the number of wells that exceeded the health limit for nitrates jumped from nine in 1980 to 648 by 2007. Scientists anticipate a growing wave of nitrate problems in some parts of the state if remedial steps aren't taken.

And yet the state's patchwork regulatory efforts remain riddled with gaps that have allowed nitrate contamination to spread virtually unchecked. Consider:

- The leading source of nitrate pollution in many regions of the state - nitrogen fertilizer - is not regulated. Lettuce farmers can apply as much fertilizer as they want, within feet of a water supply well. Officials aren't equipped to determine the sources of contamination to hold anyone accountable.
- Sixty-five percent of domestic wells at Central Valley dairies test over the public health limit for nitrates, putting residents at risk of potential exposure. Yet, according to records obtained from the state water board, none of the dairies was fined for a nitrate problem identified by the state.
- When polluters are found responsible for nitrate contamination, the state rarely does anything to correct it. California has issued 248 enforcement actions against 44 polluters for nitrate contamination in the past six years. But only once has the state ordered a polluter to clean up contaminated groundwater.

Families in rural communities typically pay more for tainted water than ratepayers hooked up to clean water systems. Residents in the tiny town of Seville in eastern Tulare County, for example, pay a monthly fee of \$60 for nitrate-laden water that the county's health department has warned them not to drink.

By comparison, the average water bill is \$26.50 a month for San Francisco residents, who consume water from the pristine Hetch Hetchy water system.

"The people who are polluting the water, they don't pay for that cleanup - the ratepayer does," said Debbie Davis, a legislative analyst with the Oakland-based Environmental Justice Coalition for Water, a network of groups advocating for clean water. "If California is going to meet the water challenges of the future, we have to figure out how to deal with nitrates."

Darrin Polhemus, deputy director of the State Water Resources Control Board's division of water quality, said his agency has chosen to spend more time and resources dealing with chemicals such as perchlorate and dry cleaning solvents, which cause more acute health effects when leached into groundwater.

Contaminated wells

It's not clear how often nitrate exposure leads to serious health problems, including acute "blue baby syndrome," because state officials do not keep records and doctors are not required to report such cases. Bottle-fed infants whose formula was prepared using water are at greatest risk if the water exceeds public health limits for nitrates.

Many of the state's fastest-growing regions overlies vast stores of nitrate-polluted groundwater. In the eastern San Joaquin Valley, 1 in 3 domestic wells has nitrate levels that exceed public health limits.

One of those wells is on property owned by Camelia and Manuel Lopez in East Orosi, a small town in Tulare County.

The Lopez family volunteered to have their private well tested by the state last winter. The water contained nearly three times the federal health limit for nitrates, which is the equivalent of half a teaspoon in a swimming pool. Follow-up testing of the family's tap water by California Watch confirmed those results.

"You would never imagine in this country that someone would have this problem," said Camelia Lopez, who emigrated from Mexico as a young woman and moved to the countryside from the Bay Area.

Now the family buys bottled water for drinking and cooking at a cost of \$60 a month - a hardship

because Manuel Lopez, a contractor, is unemployed.

Camelia Lopez has taught their three boys - ages 6, 16 and 18 - to brush their teeth with bottled water and keep their mouths closed when they're in the shower. Putting filters on all the taps in the house would cost at least \$750.

School water tainted

On the other side of Tulare County, nitrate problems have been one long, expensive headache for Norm Brown, principal of Citrus South Tule Elementary School in Porterville.

Several years ago, Brown applied for a state grant to dig a \$100,000 well on school property to alleviate the school's chronic nitrate problem, only to learn that the school's groundwater basin was loaded with nitrates.

"I was really going to make a difference on that," Brown recalled. "But if they're digging a well, they're not going to find clean water. It's a waste of money."

The school, which has 53 students, is one of 12 schools in the state with nitrate contamination in their well water, according to public health records.

Bottled water is the only affordable remedy for Citrus South, which pays more than \$2,000 each year to stock its water coolers and distribute plastic cups. Brown is required to test the well water every month, at a cost of \$2,500 last year, before sending the results to the county.

Officials say nitrates are so common and mobile that they are difficult to track once they get into the groundwater, making the contaminant hard to monitor.

"It is much more difficult to go out and identify a single cause of a nitrate problem in the area, and it can be also very difficult to identify responsible parties and figure out what corrective action needs to be taken," said Ken Landau, assistant executive officer of the Central Valley Regional Water Quality Control Board.

Little enforcement

Farmers and companies are urged not to degrade groundwater but are mostly left to employ voluntary strategies to comply. Fruit and vegetable farmers are exempt from enforcement oversight of groundwater, according to a review of agricultural policies across the state.

The wells at Monterey Mushrooms Inc. in Watsonville, the nation's largest marketer of fresh mushrooms, have exceeded nitrate limits 17 times, according to records reviewed by California Watch.

In 2006, the Central Coast Regional Water Quality Control Board cited the company for four of the violations. "Nitrate out of control!" one staff member scrawled on a lab report obtained by California Watch. But the facility has not been fined.

General Manager Wayne Bautista said the high nitrate readings are from a well closer to other fields on a ridge above the mushroom plant. He said the company has reduced the wastewater it applies to land.

Camelia Lopez feels helpless about her family's nitrates problem, which testing has traced to animal manure, possibly from nearby cattle ranches, or a leaky septic system.

"Please care a little bit about this community," she says. "Just like I'm worried about this, there are other mothers with a lot of kids who are worried about this issue, too. If it were you and your kids in this community, what would you think? What would you do?"

California Watch is a project of the Center for Investigative Reporting with offices in the Bay Area and Sacramento. Read more about nitrate contamination on its Web site at www.californiawatch.org.

Water research

The State Water Resources Control Board has funded a series of studies by the U.S. Geological Survey to measure nitrates in groundwater across the state. Much of that information can be found in a searchable mapping database called GeoTracker: geotrackerbeta.ecointeractive.com/gama

<http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/05/17/MNLC1DCRMF.DTL>

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