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Chemical tainting Valley towns' water ; Studies link chlorination byproduct to birth defects.

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BROWNSVILLE - A chlorination byproduct that studies have linked to cancer, miscarriages and neural tube defects has been detected in at least 12 Rio Grande Valley water systems at levels exceeding federal standards.

Residents of Alamo, alerted last month in a letter from the town's water system, were among the first to learn their drinking water was laced with high levels of trihalomethanes, chemicals that are a product of the water chlorination process.

Most of the Valley towns' water comes from the Rio Grande, which contains high levels of organic matter. When the water is chlorinated, the organic material produces the trihalomethanes.

"We've been drinking water, but only from the water mill. We don't drink tap water," said Adelaida Moody, a resident of Alamo, in Spanish.

As the letters sent to Alamo residents last month warned, studies have shown the chemicals may cause miscarriages in the first trimester of pregnancy.

Also, the U.S. Environmental Protection Agency warns the chemicals may cause liver, kidney and central nervous system problems, as well as cancer.

Perhaps even more pertinent to a region plagued by birth defects, three studies have linked the chemicals, at levels even lower than those allowed in Texas, to neural tube defects.

The birth defects occur when a sheath of embryonic cells fails to close completely to form the spinal cord and brain during the first month of pregnancy.

Families in the region were shocked in 1990 and 1991, when 33 Cameron County children with neural tube defects were born, a rate three times higher than the national average.

In 1998, after the rate of neural tube defects had dropped steadily for six years, the number of cases inexplicably shot up again.

In La Feria, one of the small cities with water exceeding the state's maximum level for trihalomethanes, officials are planning to reduce levels with ammonia or chlorine dioxide, said City Manager Sunny Philip.

Though the city plans to improve the water before a 2004 federal deadline, it's safe to drink now, he said.

"If it was an immediate danger or something, (the EPA) would have issued a warning right away," Philip said. "Our water is safe to drink, and we've never had any violations of water guidelines."

Activists who blame environmental causes for the high level of birth defects on the U.S.-Mexico border said they have suspected trihalomethanes for years.

"This doesn't surprise me at all," said Dr. Carmen Rocco, a Brownsville pediatrician. "These trihalomethanes go back to the issue about solvents, and we know that that's a big exposure for this community."

While trihalomethanes are used in solvents and chemical processing, as well as in oil wells as fire retardants, a chemist who has studied the Valley's pollution said he believed most of the trihalomethanes were occurring as byproducts due to water disinfection.

"If somebody was dumping (these chemicals), as far as it remaining in the river, it's pretty volatile stuff," said William Lipps, who runs an environmental testing lab in Farmington, N.M. "It's not likely it would still be there by the time it gets to the water treatment system."

Lipps, whose father tested Valley water for trihalomethanes as early as 1963, said Brownsville had high levels of the disinfection byproducts back then.

In the mid- to late 1980s, the city began adding ammonia to its disinfection process to reduce the level of trihalomethanes.

The EPA proposed regulating trihalomethanes in 1977 and, starting in January, will require large water systems to keep their levels to a maximum of 80 parts per billion. Smaller water systems - those that serve fewer than 10,000 customers - have until January 2004 to comply.

Texas' standard is 100 parts per billion, but the rule, enforced by Texas Natural Resource Conservation Commission, is limited to large water systems. Utilities serving small communities are not regulated.

"Out of proactiveness, (we) have been getting some data from all of the systems," said TNRCC spokeswoman Jean Pieper Voshell, explaining that the state agency had begun testing small systems to help them prepare for compliance

with federal regulations. At least 10 systems in the Rio Grande Valley have not been tested.

Frank Bove, the scientist who conducted a New Jersey study published in 1995 linking trihalomethanes to neural tube defects, said there may be evidence to suggest the chemicals may be involved in Valley birth defects.

"I think the data is strong enough," said Bove, a senior epidemiologist with the Agency for Toxic Substances and Disease Registry. "It's strong enough to say that we suspect it, and that should be a strong reason for it to be looked into in Texas."

Bove said his study found the rate of neural tube defects increased three times with exposure to trihalomethanes. Another 1998 study in New Jersey found a somewhat weaker link, at about two times.

The two studies examined women exposed to trihalomethanes, some at levels lower than Texas allows in water.

A study in Nova Scotia, published in 1999, also found a link between disinfection byproducts and neural tube defects.

Bove said other water disinfection byproducts called haloacetic acids have been linked to neural tube defects in EPA studies of mice. In January, EPA will require testing for the acids in water systems serving more than 10,000 people.

For now, some La Feria residents have gone to bottled water.

"The water is always frigid," Pauline Gonzales said in Spanish. "It comes out pure chlorine. Now, I drink bottled water since last week."

Stacy Davidson, another La Feria resident, said his family has purchased water filter or bottled water for a decade.

"The last seven years is when the chlorine has gotten really bad," he said. "The reason I know is that when you're taking a shower, you can smell the chlorine."

Chemist Lipps warned that taking a steamy shower might be the surest way to ingest trihalomethanes.

"The worst exposure to it, at least from what I've read, is the inhaling you do when you're in the shower," he said. "You drink it, and it goes in your stomach, and it combines with acids. But when you inhale it, it goes straight to your bloodstream."

But many were not ready to panic over a chemical that might have been in the water for decades.

"I don't drink the water to begin with, to be honest," Alamo obstetrician Alberto Duran said. "It's not that great tasting. We've told our patients they should drink bottled water if they have to drink water in the Alamo area."

"But it really isn't that much of an issue. There really isn't any conclusive evidence at this point. Still, it's better to be safe than sorry."