Hidden Wells, dirty water

Yakima Herald-Republic
October 12, 2008 | Leah Ward

OUTLOOK -- Like many rural Lower Yakima Valley residents, Norma and Leonardo Solano used their well water for years with little thought.

But in January, Norma Solano saw a television report about contaminated well water at nearby Outlook Elementary School. The water had tested high in nitrates, an odorless compound found in water and soil that can pose health risks.

For days afterward, she tried to learn how widespread the problem might be.

"I called the school and they said the problem was just at the school," Solano recalls. "I left three messages at the health district and didn't hear back. Nobody came around with any information in either English or Spanish.

"Maybe they don't worry, but I do."

As news of the school's water problem spread, a company selling filtration systems came looking for customers. It tested the Solanos' well and found unacceptable levels of nitrates -- just like at the school. It then tried to sell the Solanos a $4,000 filtration system.

"We are poor people. We cannot afford that," says Solano, who works as many hours as she can get at Fiesta Foods in Sunnyside. Her husband is a farm worker and tends a few goats on the side.

The couple now spends $200 a month for bottled water, the equivalent of more than $1 of every $10 they earn, as they struggle to keep up with the mortgage on their 1910 wood-frame farmhouse.

Their situation isn't unique.

A little noticed scientific study six years ago found that one in five of 195 wells tested outside five Lower Valley communities contained levels of nitrates above federal safety limits.

The wells that were tested serve homes situated amid and around dairies, cornfields and orchards. The wells are usually shallow and old, and may be too close to aging septic systems that could be failing. In any case, the wells are not connected to municipal water supplies, which are regularly tested for contaminants.

In 1991, when contaminated shallow wells were found in a then- unincorporated area between Yakima and Union Gap, the state ordered an emergency bottled water distribution program for hundreds of homes. A large-scale education campaign also was undertaken warning residents about the potential danger of using shallow drinking wells.

No such actions have been suggested in the Lower Valley, leaving people like the Solanos not knowing where to turn.

Responsibility for keeping groundwater and drinking water clean is divided among at least five different state and federal agencies, which often have conflicting missions. Coordination is poor. Adequate money is in short supply. And legal loopholes can make it difficult to enforce clean-water laws.

Despite the evidence of contamination, including bacteria found in the feces of warm-blooded animals, there's been no attempt at a widespread testing program for private wells in the Lower Valley. The presence of nitrates raises the likelihood that other contaminants could also be reaching well water.

But no government agency tracks or reports health problems that could be caused by contaminated wells.

Nitrates and the bacteria they are often found with are part of rural life. They come from the manure of dairy cows and beef cattle, horses, wildlife, human feces and the application of commercial fertilizer to crops.

But a Yakima Herald-Republic investigation of public records found that broader efforts to scientifically identify and monitor groundwater pollution have been thwarted by the dairy and livestock industries -- which in Yakima County account for an estimated 115,000 dairy cows and beef cattle living in concentrations as great as 8,000 per farm.

It's a problem other communities have grappled with. Ten years ago in neighboring Grant County, residents, local elected officials, farmers, feedlot operators and dairies recognized that nitrates had seriously contaminated groundwater. Since then, there's been an ongoing effort to reduce the problem.

But in Yakima County, such dialogue is rare. Indeed, it's nonexistent.

A group of activists opposed to big dairies decided many years ago that the hammerhead of litigation -- threatened and real -- is the only way to force change. They've refused to participate in government rule-making surrounding manure management.

Dairy producers, proud and private, prefer to speak through their lawyers and lobbyists. They say they are family farmers under siege for a way of life that contributes substantially to the local economy.

Although dairies have had and continue to have demonstrated environmental problems, the most important details of their operations are kept secret from the public, leaving people like Solano to trust the same government they can't get any help from.

Both dairies and their adversaries continue to ring up thousands of dollar in legal fees to defend their positions.

Meanwhile, at the cost of $48,000 in taxpayer dollars, the Outlook school was able to drill a deeper well into cleaner water.

That's not an option for people like the Solanos and their neighbors in the Lower Valley, where nearly half the residents live below the federal poverty level.

Today, Monday and Tuesday, the Yakima Herald-Republic will look at groundwater contamination, how it affects everyday life, why the problems have been overlooked and what can be done about it.

Leah Ward

Hidden wells, dirty water Part 2: Where's the accountability?

Yakima Herald-Republic
October 13, 2008 | Leah Ward

SUNNYSIDE -- After several years of bouts with diarrhea, headaches and general listlessness, Marci Ogden began to think the problem might be her well water.

When a sample from her well in 2005 revealed bovine bacteria, her suspicions turned to a settling pond built several years earlier to collect runoff from a nearby cornfield, which was sprayed with liquid manure.

In trying to solve the problem, Ogden embarked on what would become an 18-month odyssey that gave her first-hand experience in government bureaucracy and demonstrated how those responsible for keeping groundwater clean can fail. Public records show that multiple government agencies couldn't -- or wouldn't -- help.

"Nobody took responsibility. I was passed around and passed around," Ogden said.

Ogden, 51, a single mother with a passion for horses and country living, eventually found out her water also tested high for nitrates.

Unlike many other rural Lower Valley residents, Ogden was fortunate in several regards: She knew how to complain long and loudly to government officials, and she had the resources to drill a deeper well at her home. Ogden, a part-time waitress and bookkeeper, and her teenage daughter were able to move to Ellensburg. Their single-story home on five acres just north of Sunnyside is rented out and up for sale.

Such options aren't available to many others in a region beset with the challenges of poverty, language barriers and limited education.

Ogden's efforts did not go unnoticed.

She had fallen into an "awful bureaucratic crack," Bob Raforth, the regional hydrogeologist for the Department of Ecology based in Yakima, wrote in an urgent 2006 memo to his superiors.

Raforth added that her contaminated water was the tip of the iceberg.

"Ms. Ogden's problem is not an isolated occurrence. I think it is important that we keep that in perspective. Addressing her problem in isolation will do nothing for the rest of the wells that have been demonstrated to be contaminated in the Lower Valley."

Nothing has been done by the Ecology Department or any other agency since Raforth wrote the memo nearly three years ago.

Ogden's attempts to get someone to investigate the source of her well pollution began with the Ecology Department on Aug. 25, 2005.

Ecology officials sent her to the state Department of Agriculture because that agency regulates how dairies manage manure. Agriculture's lead inspector, Virginia Prest, investigated the site the next day. She noted that the well was old and had a small hole in the cap, although there was a roof over the wellhead.

But Prest eventually concluded that Ogden's problem was outside the agency's jurisdiction because the source of the contamination couldn't be established.

Even if the source was manure from the settling pond 35 feet from her well, the agency has no enforcement powers beyond the doors of the dairy.

"If a dairy gives manure to a crop farmer, once it leaves the control of the dairyman, it's no longer their responsibility and it's out of our jurisdiction," said Nora Mena, manager of the Livestock Nutrient Management Program at the Agriculture Department.

Prest subsequently asked the Yakima Health District to handle the complaint, but was told it has no jurisdiction over private wells -- only community water systems. Neither does the state Department of Health.

"I didn't know that," Prest recalled in a recent interview.

High-level Ecology Department officials were also unaware that neither local nor state public health officials are required to test small private drinking wells.

They soon found out.

Ogden began calling the Ecology Department again. In December 2005, four months after her initial complaint, her story caught the attention of Tom Tebb, section manager of the water quality program in Yakima. He sent a memo up the agency's chain of command to Jay Manning, the director in Olympia.

"She doesn't feel that it is right that she has to drink contaminated water from her well as a result of a neighbor involved in the dairy or feedlot industry," Tebb wrote. "I tend to agree with her."

Tebb went on to list eight questions the agency should think about, including these two:

Why is it that we have no direct course of action (between agencies) to resolve this issue for the affected public?

How can we successfully resolve this issue so that some other person doesn't have to work so hard to get something done about all of this?

The same month, the Ecology Department collected samples from Ogden's well and six others nearby in what was called a "one-time expedited effort to determine whether there was a groundwater contamination with fecal coliform."

Fecal coliform is not the same thing as total coliform, a general test that requires follow-up to find out if the most virulent forms of the bacteria are present.

Ecology's samples showed no evidence of fecal coliform. But that doesn't contradict an earlier finding by Heritage University and the University of Washington School of Public Health that the genes of the bacteria were bovine.

Ogden's water also had nitrate levels of 23 milligrams per liter, more than double the federal limit of 10 milligrams per liter. Three nearby mobile homes also tested high for nitrates.

Ogden remains frustrated that no one ever found the source of her well contamination, which she has taken to mean that others may pollute groundwater with impunity.

"There's no accountability," she said.

But one way to determine the cause of groundwater contamination in the Lower Yakima Valley would be to monitor underground water with test wells.

Such wells could determine whether contamination was from faulty septic systems, manure from leaking lagoons, excessive application of manure to crops, or the use of commercial fertilizer.

In 2004, Ecology Department officials proposed monitoring groundwater as part of a new federally required permit for Concentrated Animal Feeding Operations, or CAFOs, which are livestock operations with more than 700 animals fed in a confined space, not on pasture.

Studies have shown that CAFOs have affected groundwater quality in Washington, the agency noted at the time.

The agency concluded that if monitoring detected contamination, dairies would be required to change their operations to protect groundwater, which is the only available water supply for many rural residents.

But the groundwater monitoring idea was dropped after Agriculture Department officials told their counterparts at Ecology that the industry objected.

Higher-level Ecology officials came around to that point of view, testifying at a hearing last year that the industry didn't want groundwater monitoring.

For example, David Secrist of Moses Lake-based El Oro Cattle -- a sister company to AB Foods Washington Beef Plant in Toppenish -- e- mailed the Agriculture Department saying the industry would be willing to adopt more "best management practices," which he didn't specify, "but no groundwater monitoring."

The industry would have had to pay for groundwater monitoring wells, and persuaded the Ecology Department it would be too onerous. Shallow wells run in the neighborhood of $2,000 each, while deeper ones can reach $10,000.

While the industry was well represented on the "stakeholder committee" that advised the state on the CAFO permit, participation by state environmental groups was, at best, limited. Community activists didn't participate at all.

Helen Reddout, president of CARE (Community Association for Restoration of the Environment) of Granger, said she was invited on the condition that the process end in consensus. But that was unacceptable, said Reddout, who has long battled dairies over manure management.

"We weren't going to be able to say if we disagreed, so there was no point, in our opinion. It was going to be censored anyway," Reddout said.

She added that Seattle-based environmental organizations, like the Washington Environmental Council don't offer any assistance to rural residents living near dairies.

"We've asked them for help, but by and large they have ignored us," Reddout said.

Michael Mayer, legal director of the Washington Environmental Council, said his group was never contacted by CARE, but he also said the council's focus is on the quantity, not the quality, of water.

"The work we do surrounds water quantity issues that facilitate sprawl," Mayer said.

In any case, soil testing -- rather than monitoring groundwater - - will be used under the CAFO permits to track pollution from dairies and feedlots. Dairies already are supposed to test their soil, so there will be no additional cost when the permit eventually takes effect. The U.S. Environmental Protection Agency is still working on final regulations, which will then be adopted by the states.

Experts debate the effectiveness of soil versus groundwater monitoring. Robert Stevens, a soil scientist at Washington State University's research center in Prosser, said soil testing is valuable because it can show whether there is too much nitrate before it enters the groundwater.

"Soil testing is a more practical way to predict problems because by the time the problem gets into the groundwater, there's nothing you can do about it," Stevens said.

But Thomas Harter, a groundwater hydrologist with the University of California, Davis, said soil sampling is limited.

"I'm a little biased against soil sampling because they're looking at what nutrients are available to the plant, not the amount that's gone down below the root zone into the groundwater," he said.

Harter said even if a soil sample shows normal nitrate levels, it doesn't mean it hasn't penetrated into the aquifer. But he acknowledges the cost limitations of wide-scale groundwater monitoring, which is done in California only at dairies with a history of problems.

The Ogden case prompted a brief inter-agency effort to find a way to address the Lower Valley's groundwater problem.

Mena, the nutrient program manager at the Agriculture Department, wanted to lead that joint effort with the Ecology Department and local and state health officials. In a January 2006 memo to then- Agriculture Director Valoria Loveland, Mena asked for time for the special assignment.

She anticipated Loveland's resistance.

"I realize that this issue is groundwater which is/will remain Ecology's responsibility to address. Agriculture, including dairies, is undoubtedly part of the problem so I don't want to oversimplify the potential effects of any actions that may come out of this," Mena wrote.

"I hope you agree with me that (the Agriculture Department) should take the lead in bringing the parties together."

Loveland turned Mena down.

"As I recall, she agreed we should stay involved but since we didn't have any authority over all the pieces it should be Ecology to take the lead," Mena said.

Loveland, who is now retired, did not respond to inquiries from the Yakima Herald-Republic.

Splitting responsibility for groundwater regulations between the two departments is a problem, according to Ecology Department director Manning.

"Both agencies sort of assume the other is going to take care of things and they don't," Manning said in an interview.

"We clearly need to finish this job or move it all back to one agency. I don't care who has it but I'm frustrated by this middle position. We've stalled out."

At one time, there was a vehicle for at least a discussion in the state Interagency Groundwater Committee, which included all agencies with a role in groundwater, led by the Ecology Department. But it has since become inactive.

Ogden, meanwhile, said she and her daughter have regained their active lives, riding horses and camping around their new home in Ellensburg. She said she could never again live in the house in Sunnyside even though she loved the property.

"Just the memory of drinking all those cups of coffee and tea and glasses of water over the years without knowing it contained bovine bacteria. I just couldn't do it."

Leah Ward

Hidden wells, dirty water Part 3: Working together

Yakima Herald-Republic
October 14, 2008 | Leah Ward

OTHELLO -- It took dairyman Dwain Forester a year before deciding to join an unusual cooperative effort to combat nitrate contamination across the Mid-Columbia Basin.

"I did not follow easily," said Forester, a plain-spoken bear of a man who runs a medium-sized dairy of 500 cows and grows corn on the low hills near Royal City.

But Forester, who sits on the Washington State Dairy Federation board, was worried by what he saw in the Lower Yakima Valley in the mid-1990s.

Environmentalists were suing dairy after dairy for violating clean-water laws -- winning judgments and settlements -- while state and federal regulators were cracking down on illegal dumping of manure into waterways.

"We watched what was going on in Sunnyside and everybody was paranoid of a lawsuit," Forester said. "We had to act."

There was good reason to worry. Nitrates were found above federal limits in 20 percent of private wells in Grant, Franklin and Adams counties. Another 37 percent showed elevated levels, indicating they were approaching the federal limit of 10 milligrams per liter. The contamination was showing up in both shallow and deep wells.

More than 90 percent of the area's population of about 177,800 relies on groundwater for drinking water.

Because of the contamination, federal officials threatened to declare the area a "sole source aquifer," a rarely used designation to protect drinking water supplies.

No one liked the idea, which would have given the government broad powers over the basin. For example, the U.S. Environmental Protection Agency would be able to review all federally funded projects and block agricultural loans that could result in increased groundwater pollution.

Farmers also worried the state would step in and limit the use of nitrogen-rich commercial fertilizer, which is critical to the region's 300 different crops.

Fears about government intrusion into the basin's farm-based economy prompted potato farmers, hay growers, feedlot operators, dairies, ordinary residents, small-town officials, county commissioners and state legislators to look for an alternative.

"You had these very emotional meetings that drew crowds of people who were very scared that Uncle Sam would be taking over their water," recalled Paul Stoker, 59, of Othello, a former sugar beet farmer.

A lot was at stake. The basin's potatoes supply half the nation's french fries --a cash value of about $630 million. Apples, wheat and corn are large-volume crops. There are large herds of dairy cows and beef cattle.

After four years of meetings by volunteer citizen groups, support grew for the idea of a Groundwater Management Area, which by law requires local management. Local lawmakers also backed the effort in the state Legislature, which agreed to help finance the plan.

Certified by the state in 2001, the groundwater management area now includes Grant, Adams, Franklin and Lincoln counties -- about 8,000 square miles of the Columbia Basin -- and operates on a budget of about $2.5 million in local, state and federal funds. Local businesses and farms don't pay into the groundwater management area.

Like the Lower Yakima Valley, poverty is higher in the four- county area than the rest of the state and a significant portion of the population, 47 percent, is Latino.

The area has come to be known by the phonetic pronunciation of its acronym, "gwama." The plan is based on recognition that the primary source of the groundwater problem is the application of fertilizer on irrigated lands, called nitrogen loading.

Ecology and state health officials, including then-state health officer Dr. Mimi Fields, praised the move.

"Nitrate contamination is often an indication that the water supply is vulnerable to contamination from other sources," Fields said in a statement at the time.

Programs to reduce nitrate leaching included using less irrigation water and planting crops with deeper roots, such as alfalfa, which can use nitrates that would otherwise enter the groundwater.

A review of samples taken by the groundwater management area over three successive years has shown a leveling off of nitrate concentrations for the first time in 40 years, according to the U.S. Geological Survey.

But nitrates are stubborn. Concentrations still exceed the federal drinking water standards in more than 20 percent of local wells and 35 percent of shallow wells.

The Columbia Basin groundwater management area is struggling to find the funding to continue its mission.

At a recent meeting, the groundwater management area's board updated an ambitious plan to map the layers of basalt in the basin. They want to know where the water is coming from and how old it is. So far they've mapped about 25 different layers that could hold water.

Stoker framed the question this way: "Where's the water coming from, or is it coming from anywhere at this point?"

If the aquifer is recharging from Lake Roosevelt, that's good news because it means the groundwater being pumped up for irrigation and drinking is new and free of nitrates.

"But if the water is a million years old, that's bad," said Stoker. "That says the aquifer is not recharging, or that we're just recharging from what we put back and that we may be running out of water."

Stoker owes the Legislature -- which funded the $2 million project -- the answers in January. But he said the work won't be done by then.

While they will have a model of the geology of the four-county area, they need a map of how the water flows. The information would be used for water management and regulation -- essentially to make prudent decisions about water use and the economic future of the basin.

Stoker, on behalf of the board, will request an additional $2.5 million from the 2009 Legislature for the hydrogeologic model. Given the forecast budget deficit, he said he knows it will be a tough sell.

A successful groundwater management area becomes part of the local government planning process, said Derek Sandison, who was a consultant to several GWMAs after they were authorized by the state in the mid-1980s.

Of 15 such areas formed in the last 10 years, only the Columbia Basin is still active as a stand-alone entity. County governments have absorbed many of the principles of groundwater management into their land-use and planning departments, according to Sandison.

Sandison, 55, has been director of Ecology's central regional office in Yakima since 2003 but was recently named the head of the department's new Office of Columbia River to be headquartered in Wenatchee.

Sandison said a GWMA could help tackle the Lower Yakima Valley's groundwater problem if all the parties that the law requires to be involved agree to participate.

"You wouldn't want to drag people kicking and screaming," he said.

The idea hasn't caught on in Yakima, but the Washington State Dairy Federation is willing to participate in a groundwater management plan if other parties join. Jay Gordon, executive director of the federation, said representatives of all possible sources of contamination, including golf courses that apply fertilizer, would have to be at the table.

"I have said we are ready to have that discussion as long as we invite the entire village," Gordon said.

Although it's managed to survive independently this long, the Columbia Basin area has had to cut some of its more popular programs, including free nitrate testing for local well owners and community education about the health effects of nitrates.

The Grant County Health District still provides sampling bottles and instructions for well owners on how to collect water for testing. Residents can drop the bottles back at the district, where they are picked up twice a week by area laboratories that do the testing for about $42.

Despite the cutbacks, the nine county commissioners are still behind the groundwater management area, according to LeRoy Allison, a Grant County commissioner and longtime board member. The counties provided $40,000 this year to the budget.

"It took a big broad effort," Allison said. "But the fact that we've developed information for local decision-making, as opposed to what the federal government wants to tell us, has been the biggest benefit."

Leah Ward