

Pearce Creek well tests yield few answers

By Jacob Owens jowens@cecilwhig.com | Posted: Wednesday, October 23, 2013 5:00 am

EARLEVILLE — Nearly seven months after the Cecil County Health Department began testing the water quality of residential wells in the Pearce Creek area, it seems the results have yielded more questions than answers.

On Friday, Fred von Staden, the director of the health department's environmental health division, said the last samples were being collected this week, but his department has received results from 121 of the 145 requested tests from the state labs. Those results found that drastically different quality levels exist at homes within a hundred feet of each other. They also show that some quality levels degraded since their last reading more than 20 years ago, some remain virtually unchanged, and others have actually improved.

Residents of several waterfront Earleville communities began requesting county tests of their drinking water after a U.S. Geological Survey study released in January confirmed that dredge spoils deposited by the U.S. Army Corps of Engineers nearby had degraded local water tables. The long-awaited study, which collected field data from 50 wells — 35 in the Pearce Creek Dredge Material Containment Area and 15 in residential wells in the West View Shores community — and geological surveys over two years, confirmed the presence of several elements — including beryllium, arsenic, cadmium and thallium — in amounts exceeding U.S. Environmental Protection Agency health advisory levels.

Locals have contended with high iron and manganese levels for years, which degrade the taste and smell of untreated water, but these newly discovered contaminants persuaded many to find out more. Of the 240 homes in neighborhoods and roads surrounding the DMCA, only 145 requested to have their water tested, von Staden said.

In reviewing results from raw water at two wells — one on Wickwire Drive and one on Chesapeake Circle — von Staden said the department found drastically different readings. The former all had readings below recommended levels, while the latter had some readings far beyond. Sulfate at the Chesapeake Circle home was nearly double the recommended limit while aluminum was more than 100 times the recommended limit.

The department also matched up homes with test results between 1991 and 1993 with those taken this year to try to establish what has changed. The small number of readings means the department can't make any general claims about the change in water quality in the Pearce Creek area.

“We have so few data points, so it is hard to say ‘this’ is what is happening,” he said. “(From what we do have), it says we have different things going on.”

At one Pond Neck Road home, the sulfate levels dropped from 281 mg/L in 1991 to just 25 mg/L this year and manganese dropped from 4.76 mg/L to 0.08 mg/L. On the other hand, a South Drive home in Bay View Estates saw its sulfate level rise from 63 mg/L in 1992 to 522.5 mg/L today — a nearly eight-fold change — while its manganese level rose from 1.23 mg/L to 11.97 mg/L.

Additional study of the data along with groundwater flow tables may establish a reason why some areas improved, while others degraded, but von Staden said he couldn't say why the results were mixed.

He also emphasized the test results stressed the importance of getting drinking water tested, installing a treatment system if necessary and maintaining that system once installed. While the majority of homes tested had some kind of treatment system, some were found to not even need one, von Staden said.

“Treating water that doesn't need treatment has a potential negative effect on your health by increasing sodium levels, but also on your septic system,” he explained.

As ion exchange systems treat water, it produces excess sodium and water, which are then deposited into septic system which leach out into the ground. The sodium increases total dissolved solids, which causes the exacerbated leaching of metals into groundwater.

“At some point the treatment systems may cause as much of a problem as the dredge site,” he said.

To counteract those potential effects, the department is advising homeowners to not “over-treat” their water, use reverse osmosis systems only at point of use instead of at the access point, and to investigate “demand initiated regeneration,” which would regenerate water only after a supply was depleted rather than on a timer.

Von Staden said many owners are also deferring or stopping treatment system maintenance, some of which were found to have contamination issues. Ion exchange systems that are not properly maintained will actually leach off collected contaminants caught by the system.



Pearce Creek update

Water quality test results from residential wells around the Pearce Creek Dredge Material Containment Area (seen here) were mixed as some showed troublesome readings while others were well within federal standards.

Von Staden also said it would be impossible for the county to monitor the community's wells routinely into the future to ensure they are safe.

“It's not possible for us to monitor 240 wells for the contaminants listed,” he said. “It has taken us about seven months to test a little over half of them and it has taxed us and the state lab to the max.”

Because of that fact, Von Staden said the health department is in favor of a public water system for the affected communities to ensure public health.

While the Army Corps of Engineers has discussed exploring the Upper Patapsco Deep aquifer — and a Corps official told the Whig this week that it would soon be drilling four wells to study water quality of the aquifer — von Staden said he wasn't as sold on the aquifer's purity.

Of the 121 wells tested, seven were drawing from the Upper Patapsco Deep which found six of the seven had pH values above 6. Two more wells deeper than 220 feet both had untreated pH levels above 6 and iron levels of 20 mg/L, von Staden said.

“The holes between confining layers are common in our region, so even though we don't know of one yet doesn't mean one doesn't exist,” he added. “If they are going drill 240 new wells through the confining layers, sure you're going to grout around the holes, but you run the risk of making a new hole in a confining layer.”