

Expert says Portneuf aquifer vulnerable to contaminants

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POCATELLO — A geoscience professor explained the geology of the Portneuf Valley Aquifer, and why the lower portion is vulnerable to contaminants, during a City Council study session Thursday.

“The aquifer’s vulnerability is rooted in its geology,” Idaho State University Geology Professor Glenn Thackray told council members. “Our aquifer is a very, very unique aquifer.”

See Aquifer, A5



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Aquifer

Continued from A1

His presentation is part of an effort by Bannock County to protect groundwater in this area.

As part of its comprehensive plan, Bannock County officials are in the early stages of developing a zoning overlay for the southern part of the Portneuf Valley Aquifer that would include some regulations to protect the aquifer, the sole source of drinking water for about 65,000 people in the Pocatello and Chubbuck area.

Thackray's self-described "road show," which includes a PowerPoint presentation and is being presented to various groups around the community, is an early part of that effort to educate the public on why the aquifer is vulnerable and why it's prudent to protect it.

Thackray was careful to point out he's not advocating any type of rules for the overlay area; he's just informing people about the unique qualities of the 25-square-mile Portneuf Valley Aquifer.

Thackray said the geology of the aquifer owes its makeup to the Bonneville Flood, which brought a quantity of water equivalent to what flows in the Amazon River through the Pocatello

Valley during a short, but intense period. The flood was extremely large and filled the valley to about where the "T" on the "ISU" sign is on Red Hill.

It ripped up a lot of large rocks and deposited them in the area, which is why the aquifer's geology consists of a lot of large boulders, unlike most aquifers, which are made up of sand or pebble grains.

"This is what our aquifer looks like," Thackray said, pointing to an old photo of giant boulders in front of an auto dealership in Pocatello.

While groundwater moves very slowly through sand and pebble, it moves at a relatively rapid rate through the local boulder-dominated aquifer.

"It moves about a mile a year, which is very rapid for groundwater," he said. "When contaminants get into this aquifer, there's almost no filtering and ... they move very quickly. We have a very vulnerable aquifer because of the geology."

The top soil above the aquifer consists of a relatively thin layer, he added, which means water, and contaminants, permeate through to the aquifer rapidly.

The northern part of the aquifer, which starts about where Red Hill is and runs through Chubbuck, is more gravelly and somewhat better protected, Thackray said. But the fast-moving nature of

the aquifer means any contaminants introduced into the southern portion of the aquifer would move quickly to other parts.

Thackray said most of the water that recharges the aquifer comes from the Mink Creek and Gibson Jack areas and comes from melted snow that permeates through the ground to the aquifer.

He said about 7 billion gallons of water recharges naturally into the aquifer each year, but about 7.8 billion is being pumped out annually by the community.

Thackray said one of the major issues facing the aquifer from a quality standpoint is nitrates, which come mainly from septic tanks in the southern part of town in areas where city sewer service is not available.

"The treatment to remove nitrates is very expensive and very involved," Thackray said. "If we get to the point where we're above the legal limits, we would have to deal with that as a city."

Another issue is a plume of the solvent TCE (trichloroethylene) that formed in the aquifer in the 1990s after some of it leaked from barrels that were dumped in the old landfill, which isn't lined like the new one. The good news is the city and county have addressed the problem — albeit at a cost of roughly \$5 million — and it shouldn't be a major issue in the future.

"Hopefully, the TCE plume is a problem of the past," Thackray said.

Underground fuel storage tanks are another issue, he said, and about 16 percent of the 245 tanks in the area have leaked. Because of newer regulations governing the replacement of these tanks, hopefully that is also a problem of the past, Thackray said.

Other contamination issues include a plume of the chemical degreaser PCE (perchloroethylene) in the aquifer in the Chubbuck area that resulted in one well being taken off line and another being treated with air-stripping technology at a cost of \$1.5 million.

There is also a plume of the pesticide EDB (ethylene dibromide) in the Fort Hall area in the Snake River Plain Aquifer, which the Portneuf aquifer flows into.

Thackray was careful to point out the drinking water in Pocatello and Chubbuck is safe.

"The quality of the water that comes out of the tap in Pocatello is completely within the legal limits," he said. "It is good."

Bannock County Planner Steve Ernst said after technical data about the aquifer that is being collected by experts is fine-tuned, it will be handed over to a broader group consisting of citizens and businesses who will explore the overlay idea further.