Newsday

Water agencies keep an eye as salt hits the road

By JENNIFER BARRIOS January 20, 2015

A New York State Department of Transportation vehicle sprays salt down along westbound Route 25, east of Nicolls Road Thursday morning in Centereach, N.Y., on Feb. 20, 2014. Photo Credit: James Carbone

As Long Island enters the season of the "S" word -- that would be "snow" -- observers are casting a wary eye at another "S" word: "salt."

The practice of salting the roads as a way of treating slippery traveling surfaces in subfreezing temperatures can also have lasting environmental effects on the region's groundwater, according to experts.

Road salt can increase the salinity of the groundwater in areas where the material is applied. Groundwater is the sole source of drinking water for the Island's 2.8 million residents, but if it becomes too salty, water providers must treat it before it can be drinkable.

"Every winter, it's something that's on our minds," said Joe Pokorny, deputy chief executive for operations for the Suffolk County Water Authority.

Road salt is similar to table salt, but road salt is made of larger crystals and has additives to prevent clumping. Table salt generally is not found in large quantities in aquifers.

Thousands of tons of salt are spread on county roads in both Nassau and Suffolk each winter, in addition to salt spread on town, village and state roads.

Ty Fuller, senior hydrogeologist with the Suffolk County Water Authority, said road salt leaching into the ground has impacted five of the authority's well fields -- on the North Fork and in Islip and Brookhaven.

Chemical analysis ruled out other sources of salt, such as saltwater intrusion from the ocean, Fuller said.

The authority has to dilute the water in order to get the chloride below 250 parts per million -- the level the Environmental Protection Agency has set for drinking water.

Fuller said the problem is especially acute at well fields close to roads and near areas where road salt is stored.

Salt plumes caused from road salt can take decades to reach the groundwater in some areas, Fuller said.

"Sometimes it's a slow buildup," he said. "Other times, there are massive fluctuations in concentrations."

The U.S. Geological Survey's New York Water Science Center in Coram has been tracking salt plumes underground for several years, and is currently studying the issue in Nassau County, said hydrologist Anthony Chu.

Chu said his agency has been using probes in wells to determine the amount of chloride coming into the water.

"Our data is definitely indicating that there is an increase at sites where we've done the borehole work," Chu said.

He said that a pattern began to emerge.

"Whenever there was a storm and there was road salting associated with it, there would be a spike," Chu said. "And it was a pretty significant spike."

A study done by the USGS and released last year found road salt affected urban streams, likely damaging aquatic life.

Both Nassau and Suffolk counties say they've been moving toward using alternatives, such as brine solutions instead of straight salt, as a way to reduce the amount of salt used on roads.

A spokesman for the New York State Department of Transportation said his agency reduced the amount of salt it used by 10 percent statewide several years ago, thanks to using brine and treated salt -- salt mixed with magnesium chloride to enhance de-icing qualities in temperatures below 15 degrees.

Other de-icers, such as calcium magnesium acetate, are less harsh on groundwater -- but also more expensive.

"At a minimum, 10 times more than what regular rock salt is," Fuller said.

That means, until there is a cost-effective alternative, Long Island's road salting will continue. "It's basically safety versus drinking water in this case," Chu said.

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