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## Honey Creek tainted with human waste

### Study of water samples points to leak in sewage pipes

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Honey Creek flowing through West Allis, Milwaukee and Wauwatosa is more sewer than natural stream.

The creek carries as heavy a load of fecal bacteria throughout the year as you would expect to find inside a sanitary sewer. Storm sewers discharge the waste into the stream.

But not all of the bacteria are coming from pets, geese, gulls, wildlife or State Fair livestock and simply washed by rain into storm drains, according to a Honey Creek bacteria investigation recently completed by the Milwaukee Metropolitan Sewerage District.

The study confirms an unexpected ingredient of urban storm water runoff: Some of the microbes are from human sewage. That could come only from sanitary sewers, said Chris Magruder, community environmental liaison with the sewerage district and a co-author of a report summarizing the investigation.

This could be bad news for homeowners if future testing shows the waste is coming from their privately owned sanitary pipes, known as laterals. It could cost up to \$12,000 to replace a lateral between a residence and a municipal sanitary sewer in the street, contractors said.

The sewerage district also knows such a problem is not unique to Honey Creek. A preliminary analysis of storm sewers discharging to Underwood Creek the Kinnickinnic and Menomonee rivers, and Bradford Beach also found bacteria from human feces in samples taken from one-third of the pipes. Storm sewers along the Milwaukee River might be sampled this year.

"We have to get a grip on how big the problem is," said Sandra McLellan, an assistant scientist at the University of Wisconsin-Milwaukee's Great Lakes WATER Research Institute.

Based on recent tests, she said, "Perhaps 10 percent to 20 percent of bacteria in storm water are from human sources." McLellan's laboratory tested the storm water samples for the *Bacteroides* bacteria

specifically from human feces.

In the Honey Creek study, *Bacteroides* from human feces was found in 19 of 20, or 95%, of the water samples collected in July and August last year from the storm sewer at N. 79th St. and Mount Vernon Ave. in Milwaukee. The pipe discharges directly to the concrete-lined stream channel about one-half block south of W. Blue Mound Road.

*Bacteroides* from human intestines make up about half of a person's feces. It is an indicator of the possible presence of viruses, *Cryptosporidium* and other pathogens.

Those bacteria were detected at 90% of the samples taken from a storm sewer at N. 80th St. and W. Wisconsin Ave. in Wauwatosa and 80% of storm water samples collected at N. 84th St., or Glenview Ave., in Milwaukee, immediately downstream of State Fair Park.

It was present in the storm water flows on dry days as well as rainy days, said Magruder, the MMSD community environmental liaison. There were no sewer overflows reported during the study period.

It could be coming only from sanitary sewers, Magruder said.

Among possible sources of the *Bacteroides* are municipal sanitary pipes improperly connected to storm sewers or leaks between municipal sanitary and storm lines laid too close together beneath streets. A limited investigation of sewers near Honey Creek found no evidence of direct connections.

A more likely source, Magruder said, is leaking privately owned pipes linking homes to street sewers. Contaminated water could be seeping from cracks or poor seals in the pipes.

"They probably haven't been inspected in years," he said.

Milwaukee City Engineer Jeff Polenske said city crews already had gone to Honey Creek to check for improper connections between sanitary and storm sewers near N. 79th St. and Mt. Vernon Ave. None were found.

Storm sewers that empty out of the pipe there drain rain and melting snow from a 12-block neighborhood to the south.

"We want to identify the source," Polenske said.

"We're hopeful we can narrow it down to some specific locations," he said. "If it's a private property problem, then we would work with the property owners."

Residential neighborhoods along Honey Creek in Milwaukee and Wauwatosa generally were built between 1920 and the 1950s.

Municipal sanitary sewers beneath streets and the private laterals connecting homes to the street sewers would have been made of clay from the 1920s to the early 1950s, said Tim Thur, Milwaukee's chief sewer design manager. By the mid-1950s, the pipes would have been concrete.

Municipal sanitary sewers' leaking into a nearby storm sewer likely is not the problem because most city sanitary lines are buried deeper than storm sewers beneath streets, Thur said.

Sewage seeping out of a leaking privately owned lateral, however, could easily flow downhill along a bed of gravel supporting the pipe out to the street.

To repair or replace a leaking lateral, a homeowner could pay from \$3,000 to \$12,000, said Jeff Proell, owner of Badger Underground, a Milwaukee-based sewer contractor. Costs would vary, depending on the length and condition of the pipe and the depth below ground.

Randy Prasse, executive director of State Fair Park, said officials there were surprised by the study's findings of human fecal bacteria in storm water.

"We've asked MMSD to help us with further testing this year," Prasse said.

He hopes the study will shake loose state funding for a complete inspection of all sanitary and storm sewers beneath the park.

The finding of human fecal bacteria in storm water came to light only through the development in recent years of a method for detecting a genetic marker specific to human *Bacteroides*, said MMSD Executive Director Kevin Shafer.

"This problem is not unique to Milwaukee" and its neighbors, he said. Philadelphia, for one, has confronted such leaks. "You would find this problem in all aging cities," he said.

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