



## (M) New Hampshire Public Radio Broadcast – July 30, 2008

### Wolfeboro Sewage Treatment System Worries Some



By **Amy Quinton** on Wednesday, July 30, 2008.

listen:  



The town of Wolfeboro is constructing a new wastewater treatment system. Its current practice of spraying fields with treated wastewater has resulted in more than a decade of violations in state and federal law. While Wolfeboro's new system is designed to solve those pollution problems, not everyone is convinced. As New Hampshire Public Radio's Amy Quinton reports, some Tuftonboro

officials fear the system could pollute Lake Winnepesaukee.

**Workers install pipeline for Wolfeboro's sewer project. (Courtesy David Ford)**

*(Sewer project sound....)118 1:15 sound of truck*

Up on top of a large hill in Wolfeboro, trucks are moving large rocks to line the sides of three huge basins. Each basin is six feet deep and combined they cover an area larger than a football field. David Ford is Wolfeboro's Public Works Director. He says this is where the town is going to pump up to 600-thousand gallons of its treated wastewater a day.

"What we expect when we start discharging that flow into the basin it'll spread out, but it may not even get to the far ends; it may just sink into the ground. The infiltration rates for this soil are very high so we feel it's all going to absorb, they'll be no chance of any runoff." The soil up here contains large amounts of sand and gravel left by a retreating glacier. Ford says the sand will help filter the wastewater, removing any excess nutrients before it reaches the aquifer.

Before this project, Wolfeboro had a permit to spray fields near its plant with the treated wastewater. "The problem is, it still had nutrients in it, nitrogen and phosphorus trace elements and when it gets sprayed into the woods the majority of it went into the ground or was taken up by evapotranspiration, by the growth of the vegetation in the areas, but some of it was running off, and that's where the violation was."

Local development and growth began to tax the sewer treatment system even more. Department of Environmental Services documents show that as early as 1996 Wolfeboro officials knew they were spraying more wastewater than their permit allowed. By 2002, the town was in violation 22-percent of the time. Mitch Locker coordinates Groundwater permits at DES. He says eventually the soils at the spray sites became saturated.

"We noted in several of the inspections across the land and so we did some sampling and found that the nutrients, although the groundwater was clean and met the compliance limits, the surface water had more nutrients in it than it should and it was entering the tributaries of the area and so we put an administrative order on the city."

That order claimed that increased amounts of phosphorus and nitrogen were ending up in tributaries of nearby Mirror Lake. Phosphorus can cause algae blooms and cyanobacteria which can be toxic. Since 2005, Wolfeboro has not been able to add any more connections to its sewer system. That has essentially stopped development in town. Public Works Director David Ford says the town is upgrading its 30 year old wastewater treatment plant. And it will remove more nitrogen from the water before it's pumped up the hill to the new basins. Trace amount of phosphorus will remain in the water but should be filtered out through the sandy basins.

That's the hope.



**The nearly completed Rapid Infiltration Basin for Wolfeboro's sewage treatment project. (Courtesy David Ford)**

But residents in the town of Tuftonboro aren't so sure. The basins border that town. And they sit just 1000 feet away from 19 mile brook, which eventually flows into Lake Winnepesaukee.

Tuftonboro Conservation Commissioners say they have too many unanswered questions about how the treated wastewater will affect that brook. "What does 600 thousand gallons a day do to a small brook, how does it affect the PH levels..." That's Mike Phelps. He's the Chair of the Tuftonboro Conservation Commission. He says the nitrate levels of the water going into the basins may be legally acceptable, but it's one hundred times higher than what is in the brook. And the phosphorus levels aren't good either. "The phosphorus levels are 50 times higher than what cyanobacteria will grow in, so it has the potential of causing growth."

UNH Zoology Professor Jim Haney agrees that even trace amounts of phosphorus in a brook or lake can cause problems. He hasn't seen Wolfeboro's system but the infiltration basins have some uncertainties. "The idea is that the sands have associated with them substances such as aluminum and these often cause the removal of the phosphorus, however ultimately you can saturate all of the available sites, or many of them and you have passage of the phosphorus through."

That's exactly what Tuftonboro Conservation members are afraid will happen. But DES Groundwater Permits Coordinator Mitch Locker says other infiltration basins across the state are working. "We're very confident it's been a proven system throughout the state, rapid infiltration is used at many municipalities in the state and its proven to treat wastewater to dispose of it and to recharge naturally aquifers and rivers and wetlands, so we're very confident that it will work."

Tuftonboro Conservation members argue that those systems, in Pittsburg, Canaan, Wakefield and North Conway don't have small slow-moving brooks nearby that flow into lakes. And lakes don't dilute as much as rivers. Tuftonboro Conservation Commission member Gary Chehame says Wolfeboro officials should have considered more alternatives. "It would have been far more sensible to design a system where the effluent is collected and taken away, it's a more expensive system but to start doing something some people consider experimental science as opposed to proven science we think that's a risk."

Wolfeboro Public Works Director David Ford says officials did spend time studying alternatives. They considered spraying more fields, using different sites, using the wastewater for snowmaking, and even reusing the water to irrigate golf courses and other fields.



**Workers install pipes for Wolfeboro's sewage treatment project. Town officials say that despite concerns about the project, the plan is better than the alternatives. (Courtesy David Ford)**

"The end result after a year of studies and a lot of field work and a lot of evaluation was the infiltration basin was the most beneficial environmentally as well as the most cost-

effective."

Ford says in order to get a state loan, they had to consider the most cost-effective solution. The town also faced a deadline and the threat of getting sued by the state. Engineers have installed monitoring wells in six different spots around the site to test for pollutants in the groundwater and the surface water. All told, the basin system cost seven million dollars.

And Ford says computer models show it will work. But Tuftonboro Conservation Commissioners are doing their own water sampling at a cost of 30-thousand dollars. Commission member Gary Chehame says they're picking up where Wolfeboro and DES have left off. "If you just step over the border into Tuftonboro they are doing nothing, but that's where all of this is ending up... we're doing the same testing we think DES should have mandated."

Water knows no boundaries... and if there ever is a problem with Wolfeboro's wastewater treatment system, Tuftonboro residents will likely be most affected. Wolfeboro's sewage plant has come a long way since the 1940's. Back then the town dumped raw sewage directly into Lake Winnepesaukee.

But the town can't be blamed for the current problem. It's a scenario that will likely play out in other communities struggling with a growing population. Construction on the new wastewater treatment system should be finished by December.

For NHPR News, I'm Amy Quinton.



## Around the State

### TUFTONBORO

#### **Bacteria warning for Mirror Lake**

The state Department of Environmental Services has issued a cyanobacteria warning for 378-acre Mirror Lake.

Lake users are advised to avoid contact with the water in areas experiencing cyanobacteria bloom conditions. It is visible as dense surface scums bright green or blue-green in color. DES also advises pet owners to keep their pets out of water that has a surface scum.

DES officials said recent heavy rains have sent excess phosphorus into the lake, creating ideal conditions for cyanobacteria blooms. Some cyanobacteria produce toxins that cause health effects ranging from skin and mucous membrane irritations, nausea, vomiting and diarrhea to liver and nervous system damage.

## State issues cyanobacteria warning for Mirror Lake

CONCORD — The New Hampshire Department of Environmental Services (DES) has issued a cyanobacteria warning for those who recreate on Mirror Lake in Tuftonboro. The Aug. 12 warning will remain in effect until additional samples reveal cyanobacteria levels have diminished. DES advises lake users to avoid contact with the water in areas experiencing cyanobacteria bloom conditions. DES also advises pet owners to keep their pets out of any waters that have a surface scum.

DES routinely monitors

public beaches and lakes for cyanobacteria. Cyanobacteria are natural components of many water bodies in New Hampshire. Cyanobacteria may bloom and form surface scums when excess phosphorus and ample sunlight are available. Some cyanobacteria produce toxins that are stored within the cells but released upon cell death. These toxins can cause both acute and chronic health effects ranging in severity from skin and mucous membrane irritations, nausea, vomiting, and

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diarrhea to liver and central nervous system damage.

Lake users should be on the lookout for cyanobacteria blooms. Wind shifts may easily move a cyanobacteria bloom to other parts of the lake. Often they form dense surface scums that are bright green or blue-green in color; or blooms may cause entire lakes to take on a blue-green hue. Sometimes they resemble paint chips or bright green balls floating in the water.

Visit the DES Beach Program website at [www.des.nh.gov/Beaches/cyanobacteria.html](http://www.des.nh.gov/Beaches/cyanobacteria.html) for photos and more information about cyanobacteria.