

Will the North Springfield Aquifer be threatened by a biomass power plant?

- The Town of Springfield relies on a sole-source aquifer for its water (1).
- Town water is pumped from the Springfield wellfield located on a gravel terrace along the western bank of the Black River, in North Springfield (2).
- The aquifer under the Springfield wellfield is continuous with the North Springfield aquifer (Figure 1).
- The North Springfield Energy Project proposes to build a wood biomass, power plant on the North Springfield aquifer and they propose to inject chemically treated process and waste water into the sands and gravels astride the aquifer (3).
- The chemicals and the treatment processes are, as yet, unspecified by the developer (4).

The quality and availability of water is a significant issue in the vitality, growth and economic future of Springfield (5). Springfield derives 100% of its water from the Springfield wellfield, a 2,800' x ~ 400' terrace located between Fairground Road and River Street in North Springfield. Development of a source protection plan has long been a concern of Town Officials. Studies of the wellfield aquifer in 1999 and in 2004 called for an update of the source protection plan to reflect an expanded source protection area to protect the aquifer.

Surface Water contamination of the Town water supply is an ongoing issue. Some residents of Springfield will remember when road salting and salt stores at the Springfield Highway Department on Fairground Road were proven to have raised sodium chloride levels in the Town's water supply to unhealthy levels. At that time the Town issued a warning and included it with water bills.

A portion of the North Springfield aquifer sits below the proposed leachfield into which the North Springfield Energy Project will inject waste water from its boiler and cooling tower operations and cleaning (known as blow-down). Plans call for waste water and chemicals to be injected into the ground adjacent to the proposed power plant (See map). Industrial contamination of the North Springfield aquifer poses a major threat to Springfield's public water supply and private wells that draw from the aquifer in the surrounding neighborhoods.

The water that flows into the Town water system is captured from a 160 square mile water shed consisting of unconsolidated lake-bottom gravels and sands deposited more than 10,000 ago during the last glaciation of the Connecticut River Valley. Today water draining from the North Springfield alluvial plain joins water flowing south in channel deposits of the Black River. The porous sediments throughout serve as a permeable filtration system that enables recharge of the North Springfield aquifer. In 2004 the Town commissioned a report that modeled the groundwater feeding the Springfield wellfield from whence Springfield water is pumped. Two main sources provide recharge of the wellfield. The first is the water that flows through North Springfield alluvial plain and its underground springs. Tributaries the flow also flow east to join the second main source, the Black River, as the River winds through North Springfield (see map). The 2004 Town water report water noted that the Gilchrist and Chapman wells in the Springfield wellfield occupy a relatively shallow (~40' deep), "channelized deposit" of course gravel.

Two important tributaries, Spoonerville Brook and Great Brook drain eastward into the Black River just above the Springfield wellfields (see map).

Following publication of the water report, the 2009 Springfield Town Plan noted both the importance and the fragility of the North Springfield aquifer and, in turn, the vulnerability of the Town public water supply. All of Springfield's public water comes from the Springfield wellfield. The Springfield Town Plan observes that "The Town's public water supply comes from an aquifer serving the Towns shallow well field in North Springfield. Extensive research was completed in the late 1980's to designate an alternate public water source, but did not succeed in locating one. Protection of the existing water supply is critical to the health of current and future residents. Development of a new water supply would be costly and could involve the use of chemicals and a treatment facility. The town is currently in the process of delineating more precise boundaries for the North Springfield aquifer and has developed a Source Protection Plan for the well field."

The 2004 water report and the 2009 Springfield Town Plan both acknowledge the importance of the need for an expanded "surface protection area" pertaining to the Springfield wellfield. Immediate threats to the wellfield came from activities at the nearby National Guard Armory on Fairground Road, the Town Garage and Highway Department just south of the Armory, and from nearby residential septic systems above Fraiground. To deal with the threats the National Guard and its equipment were relocated. Hazardous activities including salt storage near the wellfield were curtailed. Salt stores were relocated to the yard of the recycling and transfer station, downstream from the wellfield.

Despite the recognition that Springfield's only viable water supply is from the existing Springfield wellfield and despite an abundance of caution from a series of water studies dating to 1999 and 2004 that found no other sources of safe and cost effective Town water, we now face a potential new threat to Springfield's public water supply. The current threat comes from on-site disposal of process and waste water that the developer of the North Springfield Energy project is planning to inject into a 25,000 sq. ft. leach field adjacent to the proposed biomass power plant in North Springfield. The North Springfield Industrial Park sits astride the North Springfield aquifer (see map). The leach field that would serve as an injection site for process and for waste water from the plant will leach into the underground springs and the brooks that drain the North Springfield plain bordered by Main Street and by Spoonerville Road (see map).

The documents filed by the developer of the plant earlier this year mention the on-site subsurface disposal of process wastewater. However, in pre-filed testimony and under questioning at the Public Service Board hearing in April, three witnesses for the North Springfield Energy, including the project's chief engineer, refused to describe or enumerate the toxic chemicals and dangerous particulates that will be involved in normal operations, including the purging and of impurities left behind in the boilers and cooling tower in what is known as blow-down. The process water and water used to clean the boilers will be disposed of in an on-site leachfield located 2200' from Great Brook to the north, 2000' from Spoonerville Brook to the east, and less than a mile from the Springfield wellfield (see map). Any contaminants moving into the springs, and the brooks flowing underneath and bordering the plain will be carried toward the only source of Springfield Town water.

At the Public Service Board hearings in April a spokesperson for the developer was unable to reveal the contaminants and byproducts from blow down (cleaning of the boilers and other combustion and steam producing equipment) that would, in fact, be injected into the porous, unconsolidated gravels and sands of the drainage plain feeding the Springfield wellfield. Mr. Dana Smith of Waldron Engineering refused to reveal the chemicals said to be "proprietary." Later in his testimony, under questioning Mr. Smith noted that while he could not "recall" the chemicals that would be disposed of, the information was available to him. In fact, the chemicals used in the normal course of boiler-down operations are readily available on any number of web sites. One source provided by General Electric Power and Water <http://www.gewater.com/products/chemical_water/water_wastewater/index.jsp> discusses the

byproducts required for biological control, metals removal, odor control, and the chemical byproducts of boiler blow-down.

Up to now, the witness for developer has failed to provide specifics on the potential contaminants that will pose threats to the Springfield's water supply. Concerned citizens of Springfield deserve to know where their water will come from if our one and only source is compromised.

Jean Willard
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Figure and References Cited

1. Hoffer & Associates (1999) Report on Springfield Wellfield North Springfield, Vermont. (Available at the Springfield Town Office).
2. Hoffer & Associates (2004) Report on Groundwater Modeling Springfield Wellfield Aquifer. (Available at the Springfield Town Office).
3. "On-site Subsurface Disposal of Process Water," Public Service Board Hearings Docket 7833, North Springfield Sustainable Energy Project, Trs. 4-2-13, page 12, lines 2-12; p. 201, lines 17-24; p. 202, lines 16-18, p.218, 14-19.
4. Ibid., Public Service Board Hearings Docket 7833, Trs. 4-2-13, page 203, line 9.
5. Springfield Town Plan, Adopted April 2009.

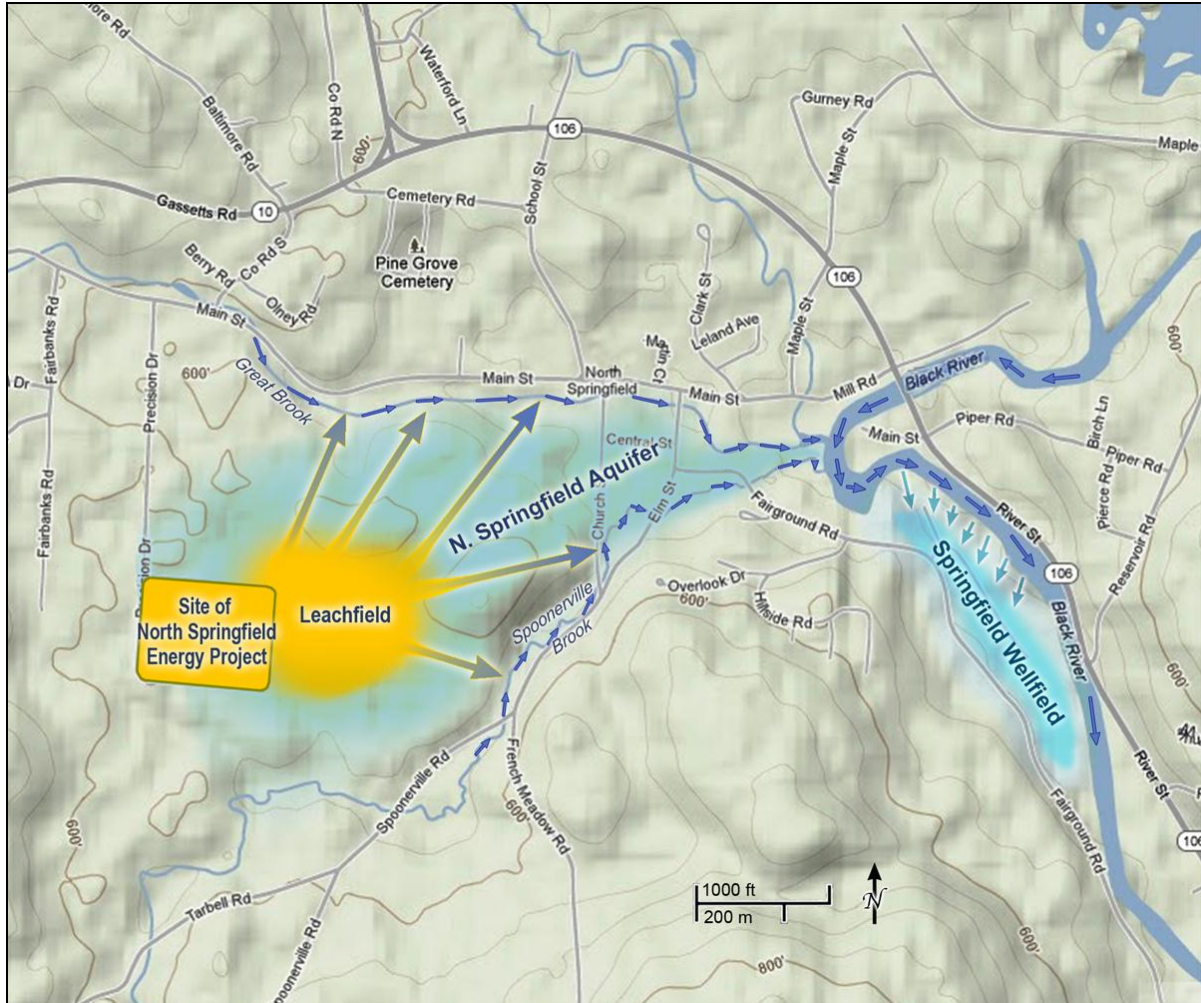


Figure 1. North Springfield aquifer and the Springfield wellfield. The wellfield is the sole source of drinking water for the Town of Springfield, including the Village of North Springfield (refs 1 & 2, above).