

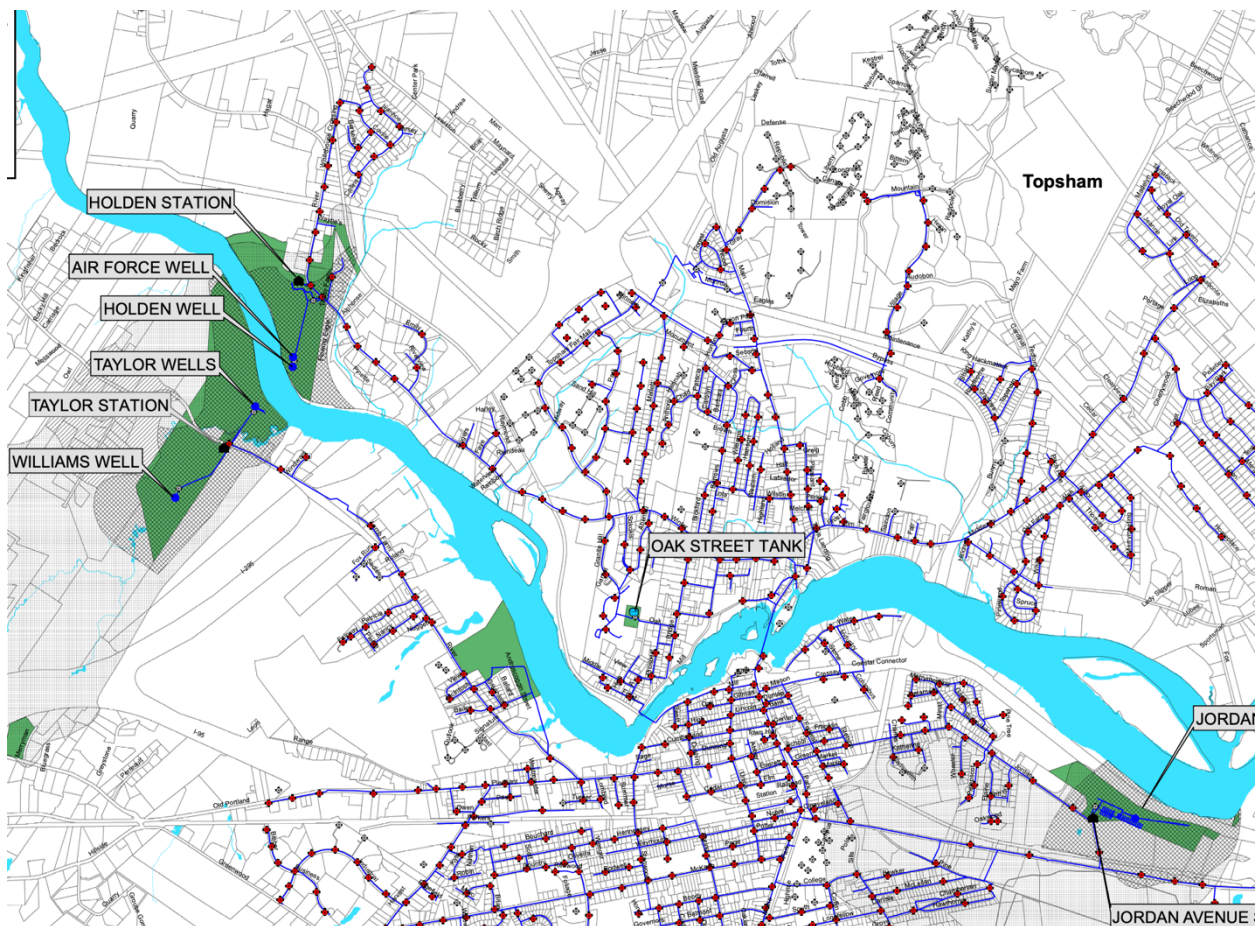
Highland Green's Water Supply: Some Details

by Jed Fahey and Tom Kent

Many Highland Green residents have asked questions about the quality of their drinking water, and we at Green Steps would like to try to provide some answers and some guidance.

First of all, by all metrics our HG potable water supply appears to be safe and clean. Federal and State of Maine regulatory standards appear to be met on a regular basis. A number of us have now visited and toured the brand new [Brunswick-Topsham Water District](#) (BTWD) facility on River Road and it is highly impressive, as are the staff. The water table that they draw on is free from significant known contaminants – thus, the water requires very little treatment.

Here is a section of the BTWD “Board Room” map or see the ([whole map here](#))



The series of wells near top left serve most of the district, including Highland Green, at the top, right of center. Additional wells at bottom right serve the Cooks Corner area. The wells near top left are below a 40-foot layer of natural clay, which slows the entry of surface water. Instead, water percolates from the surrounding gray areas, and is thus

better filtered than in many regions. The Cooks Corner wells are somewhat less well protected from contaminants.

PFAS—“forever chemicals”—have emerged as a major concern in the last few years. PFAS are a family of chemicals which are extremely long-lived. Six members of the family have so far been identified as a threat to public health. BTWD tests for these chemicals on a regular basis. They are not present in water from the wells at top left, but they *are* present in the wells at lower right. This is probably due to the proximity of these wells to Brunswick Landing, previously Naval Air Station Brunswick. The PFAS are filtered from this water. EPA keeps lowering the acceptable limit for these, and BTWD complies with the limits.

Green Steps requested and received all pesticide testing records from the BTWD over the past 5 or so years and indeed there appears nothing whatsoever to be alarmed about. BTWD tests for many potential contaminants, including mercury, lead, arsenic, radium, iron, manganese, hydrogen sulfide, uranium, hardness, pH level, pharmaceuticals, herbicides, pesticides, chloroform, PFAS, TOCs (total organic compounds, including VOCs, volatile organic compounds). The EPA regularly looks for new potential contaminants, and publishes suggested guidelines on testing for those as well. BTWD conforms to those guidelines. Microplastics, recently found to be virtually ubiquitous in our water-based products, are not present in our tap water.

In addition to the PFAs that are removed, BTWD removes three naturally occurring substances. Iron and manganese, though not toxic in the amounts present, are filtered because they can discolor dishes and other items. Organic compounds from the natural decay of vegetation are also removed. Though not harmful in themselves, some interact with the chlorine to produce undesired by-products. After removing these substances, they add three: chlorine for disinfection, fluoride to reduce tooth decay, and phosphate, to reduce wear on pipes. By the time water reaches our homes, the chlorine level is somewhere between 1/8 and 1/4 the recommended upper limits.

So our water is extremely safe. It is very likely safer than bottled water, which contains microplastics and plasticizers that may be detrimental to human health in various ways. Bottled water also contributes greatly to trash, and introduces more microplastics to the environment.

You may still wish to filter your tap water, out of an abundance of caution, or to remove the taste of chlorine.

Methods of Purification

- Filtration — including fiber / cellulose / granulated activated charcoal (GAC)
 - Removes sediment (dirt) and/or particulate pathogens (e.g. Giardia and bacteria and fungi)
 - Removes many organic pollutants (e.g. pesticides)

- Removes the residual taste of chlorine
- Reverse Osmosis (R.O.)
 - By far the most complete cleaning of water, removing almost all contaminants by filtration; removal of just about everything *except* the water molecules
- Ion Exchange (e.g. water softeners)
 - Removal of certain specific compounds, particularly metals
- Disinfection (UV light, chlorination)
 - Killing bacteria and fungi
- Distillation
 - Complete, but *not* practical for homeowners
 - Most people find the taste of distilled water objectionable
 - Distilled water sold in plastic bottles still will have plastic-derived contaminants, and in many cases is of unknown provenance.

Since Reverse Osmosis (R.O.) is the most complete, practical method of removing contaminants, we've explored the range of costs for utilizing R.O. on your potable water ranges from about \$100 for a filtering pitcher, to about \$500 for an under-sink unit, to up to \$5000 for a whole house unit (installed at the intake). All of the whole house units seem to claim to produce water at a cost of less than \$0.01 per gallon purified. Some of you may already be utilizing some of the other options presented above (e.g. the activated charcoal filters in-line on your refrigerator ice-maker, or in a Brita pitcher). We can help you compare costs of these too if there is interest.

Black or Pink Slime

Some homeowners encounter a black or pinkish slimy mold in wet areas such as showers or toilets. This is an airborne contaminant, and is *not* present in your water supply. However, BTWD gets enough inquiries about it to publish this article on ([Black Slime or Staining Formation](#)).