

# Drinking Water

Samantha Robichaud, CPHI©

March 4, 2009



# Today's Presentation

- Introduction
- Well Water
  - Drilled Wells
  - Dug Wells
- Recommendations for testing
- Boil Advisories Recommendations

# Introduction

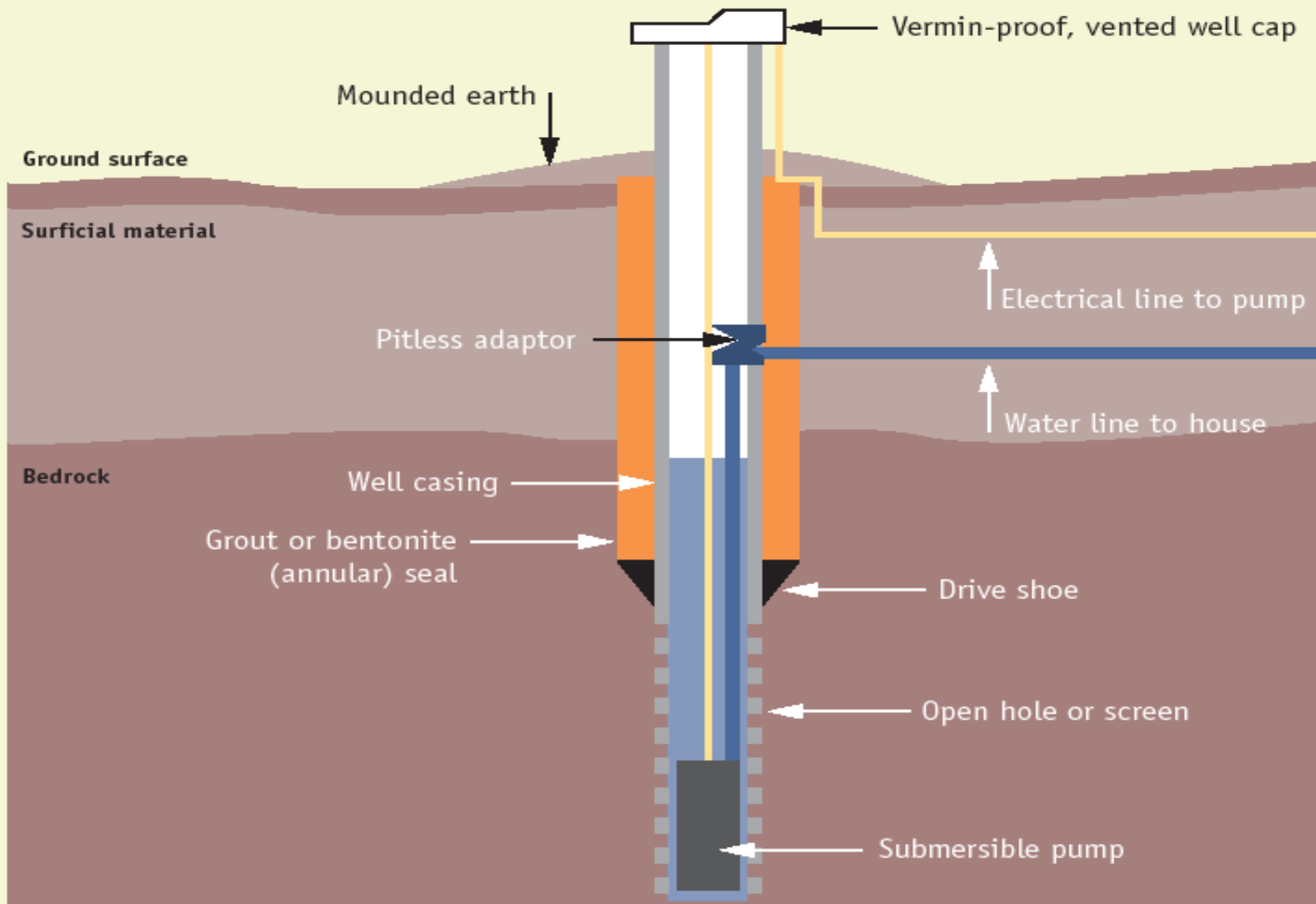
- About half of Nova Scotians rely on groundwater for their water supply
- Wells in Nova Scotia are either shallow dug wells in the overburden aquifers or deeper drilled wells in the bedrock aquifers. Springs, cisterns and surface water may serve a small number of homes
- Groundwater quality in Nova Scotia is generally good, and in most areas of the province a properly constructed and maintained well can provide a good source of clean, safe drinking water

# Drilled Wells

- Water is drawn from bedrock aquifers
- Drill rig bores a hole into the aquifer
- The upper part of the borehole is lined with casing
  - usually made of steel with a minimum six inch diameter
  - prevents the borehole walls from collapsing
    - and, along with a drive shoe or grout seal, helps prevent contaminants from entering the well
- Drilled wells in Nova Scotia are typically less than about 90 m (300 feet) depth, but may be deeper in some areas
- water yields depends on the type of bedrock, depth to groundwater, well depth, and the number of fractures (cracks) or permeable layers encountered during drilling



# Cross-section of a typical Drilled Well

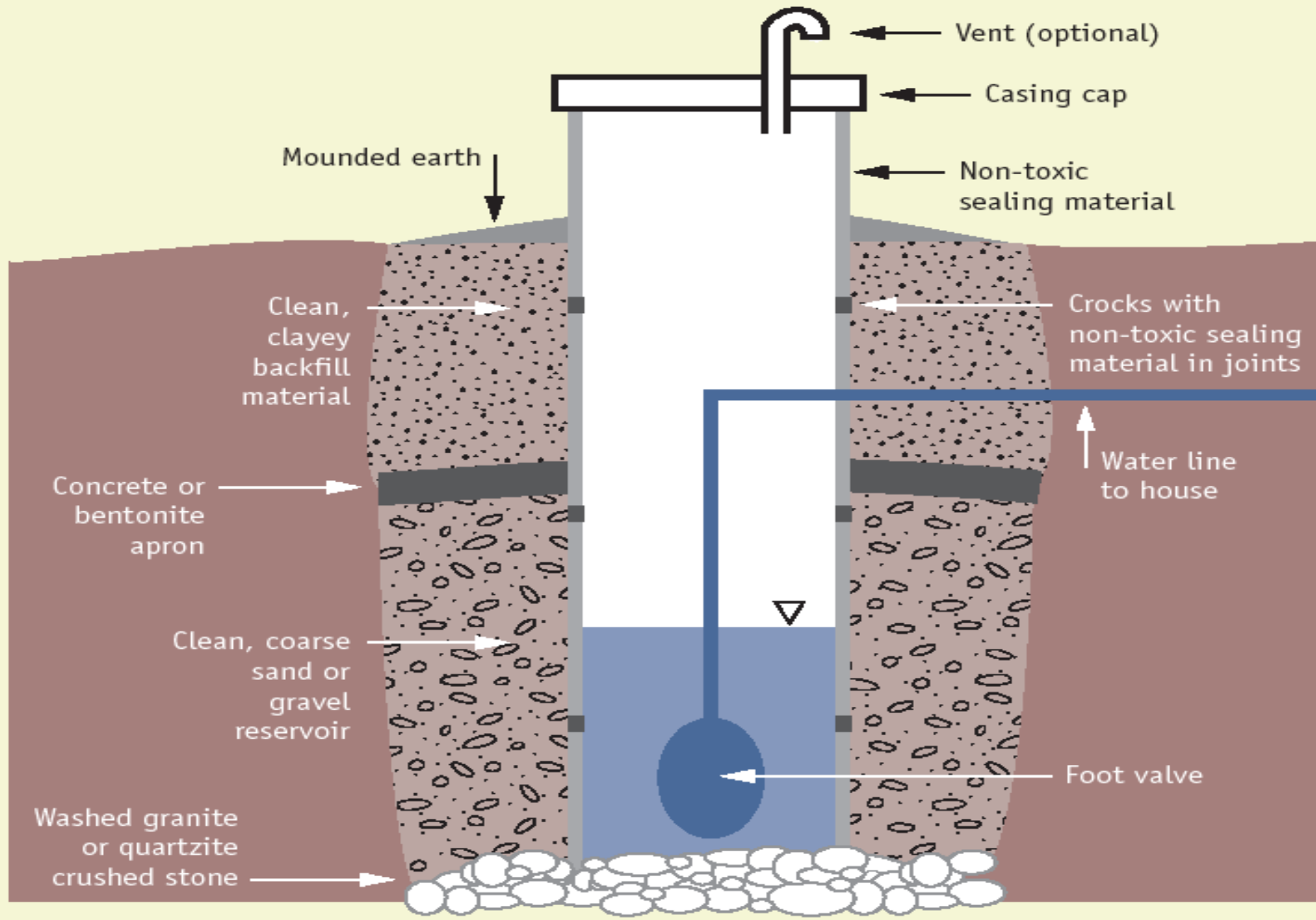


# Dug Wells



- water from the overburden aquifer
  - Glacial till: clay, silt, sand and rock
  - Range: 0 -10 m Average: 6 m
- Consists of an excavation into the aquifer, that is lined with concrete crocks
  - crocks prevent the collapse of the excavated walls
    - and, along with an apron and seal, exclude surface contaminants from entering the well

# Cross Section of a typical Dug Well



# Protect your well

- Create a grass buffer zone around your wellhead
- Slope the area around the wellhead so that the surface water runs away from your well
- Dispose of wastes safely
- Take care when using any chemicals on your property, especially near your well
- Keep sources of E. coli bacteria away from your well
  - Animal and kitchen waste can contain E. coli bacteria
  - Do not allow animals to urinate or defecate near your well
  - Do not allow liquids or wastes from contaminant sources such as garbage and manure piles to drain towards your well. These can lead to bacteria leaching into your water supply, especially during spring thaw
- Keep other sources of bacteria away from your well
  - Do not bury brush piles, stumps, or other such debris on your property, especially near or uphill from your well
  - Do not use bark mulch or wood chips near your well. These organic materials are breeding grounds for insects such as earwigs, which can cause bacteria in your well

# Recommendations for Testing

- Public vs. Private water supplies
- **Public Drinking Water Supply:** means a water supply system, including any source, intake, treatment, storage, transmission or distribution, that is intended to provide the public with potable, piped water and that
  - i) has at least 15 service connections, or
  - ii) regularly serves 25 or more persons per day for at least 60 days of the year
    - *Guidelines for Monitoring Public Drinking Water Supplies - NSE*
- Private well water
  - Not required by NSE to test. Recommend bacteriological testing every 6 months and chemical at least every 2 years

# Recommendations for Testing

<http://www.gov.ns.ca/nse/water/docs/MicrobiologicalSamplingProcedure.pdf>

Do's	Don'ts
Good sampling location	Don't collect samples from garden hoses, outside taps, or other locations that are likely to be dirty
Make sure hands are clean or washed prior to collecting the sample	Don't rinse the sampling container
Collect samples only in an approved sampling container (from an accredited laboratory)	Don't discard the sodium thiosulphate
Collect samples from the cold supply only	Don't touch the lip of the sampling container or the underside of the cap
Let the water run for 2-5 minutes before collecting the sample	Don't put the cap down while collecting the sample
Collect a sufficient amount of sample by filling the sample container to the "fill line"	Don't allow the water to overflow or splash down the side of the sampling container
Complete the requisition form including name, address, telephone number, and date and time the sample was collected	
Take samples to the laboratory in a cooler filled with ice packs and within 24 hours after collection	

# Boil Advisories

- Hold water at a rolling boil for at least 1 minute or use an acceptable alternate potable water supply
- it is essential that all water to be used for the following activities be boiled:
  - drinking;
  - preparing infant formulas;
  - preparing juices and ice cubes;
  - washing fruits and vegetables;
  - cooking; or
  - dental hygiene.
- Adults, adolescents and older children may shower, bathe or wash using tap water, but should avoid swallowing the water
  - Toddlers and infants should be sponge bathed.

# Boil Advisories

- Additional precautions
  - Wash hands in dilute solution of household bleach and water
- Long term care facilities and daycares
  - Consult with Infection Control Personnel
  - Exclude employees suffering from diarrheal illness
  - Dishes: machines reach 82°C. Manually, sanitizer min. 100 ppm chlorine

# Other Information

- Nova Scotia Environment Website
  - <http://www.gov.ns.ca/nse/water/drinkingwater.asp>

# Questions?

