



Becoming Well Informed:

Guide to Care and Maintenance of your Groundwater Supply

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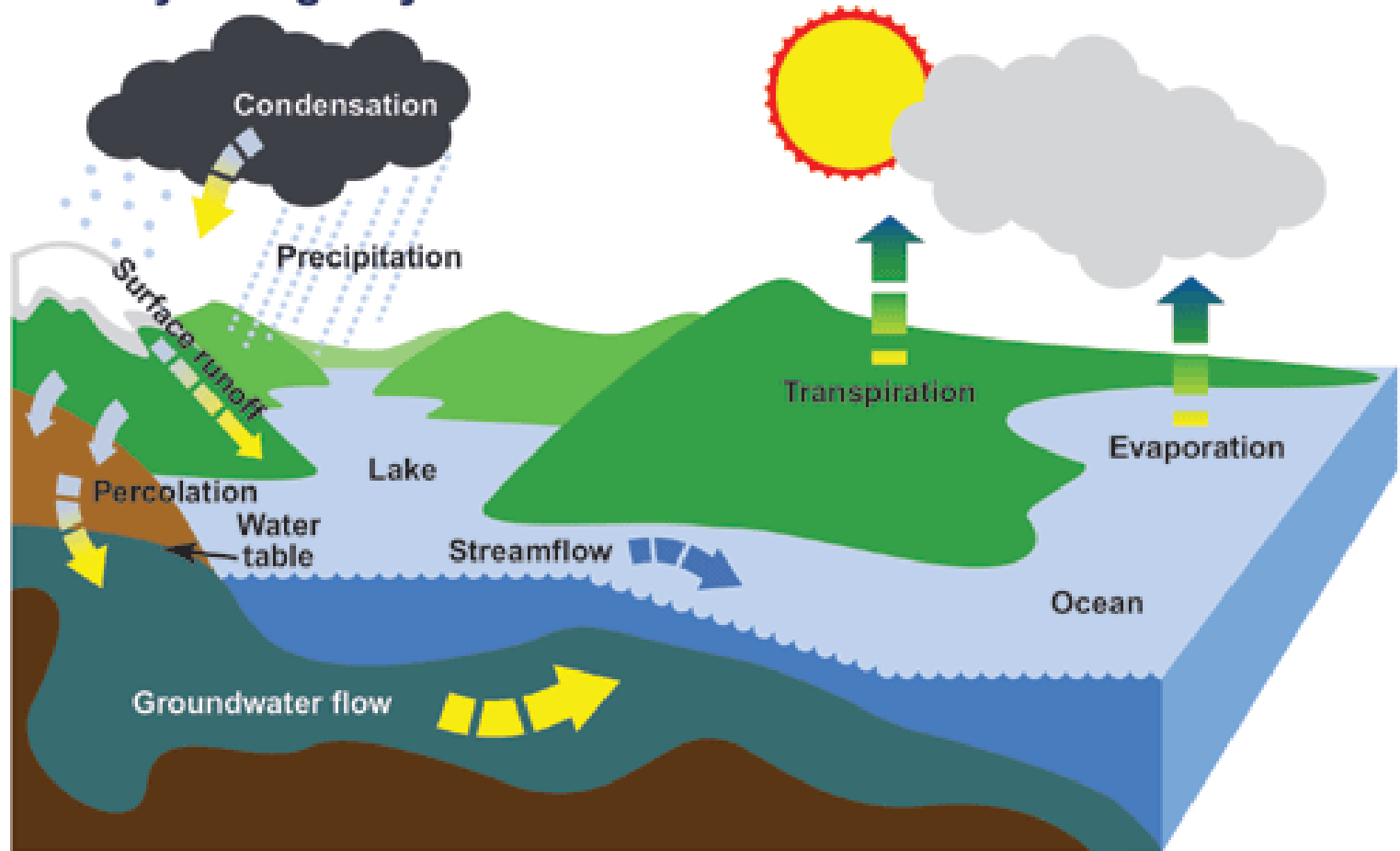
Groundwater Resources Manager

Water Resources Management Division

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What is Groundwater?

The hydrologic cycle



Groundwater for Public Supply

- 198 water systems from groundwater in Newfoundland and Labrador-

Eastern Region:	109
Central Region:	22
Western Region:	60
Labrador:	7

- Single wells to complex well fields
- Over 300 wells total
- (*Total number of surface water systems: 305*)

Steps to Maintaining Groundwater Safety

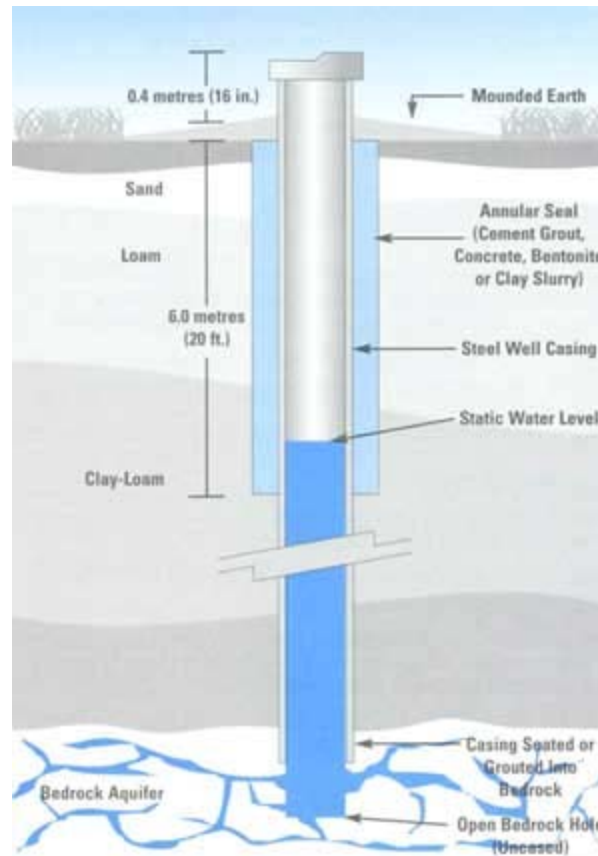
- Get acquainted with your well:
 - Know the source of your water
 - Prevent damage and contamination
 - Identify risks
 - Understand water quality results

Know the Source of Water

- Depth of well?
- Depth to water-bearing zone?
- Safe yield (results of pump tests)?
- Pump depth?
- Static water level?

Well Maintenance

- Is your well up to standards?













Examples of poor well maintenance:

- Annular space not properly sealed
- Area not properly sloped (if outside)
- Buried or below grade
- Inadequate casing above grade
- Improper/unsecured well cap
- Cracks or holes in casing







Pump Houses

- As important as well maintenance
- *Don't store anything in your pump house you wouldn't want to drink*



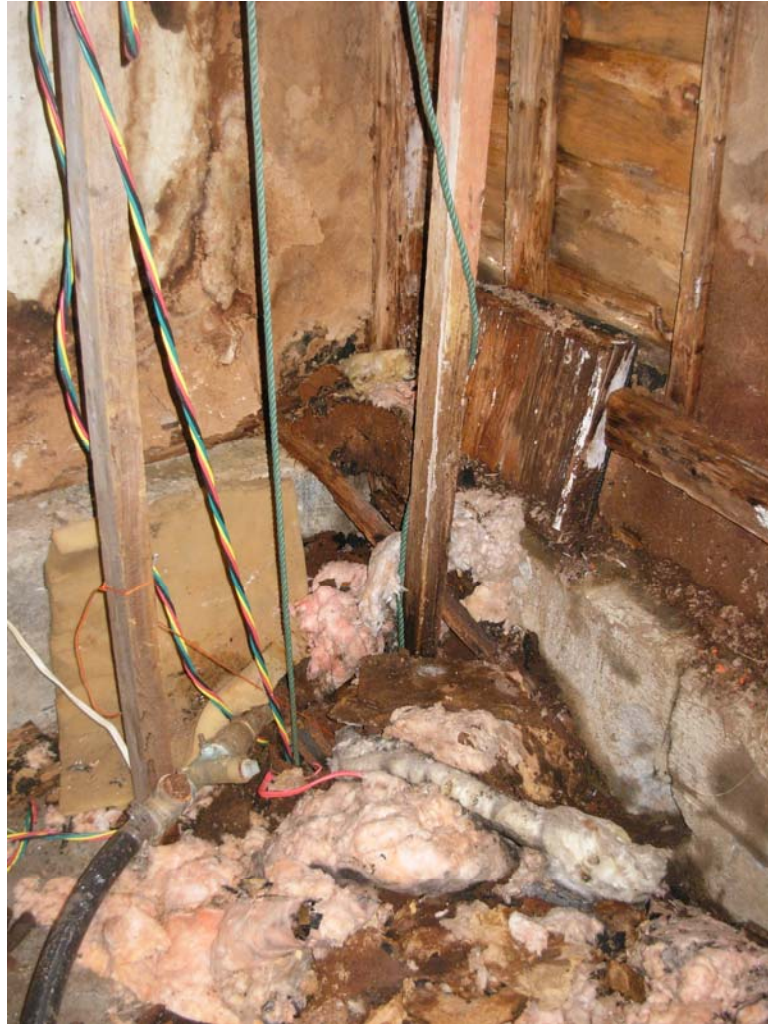












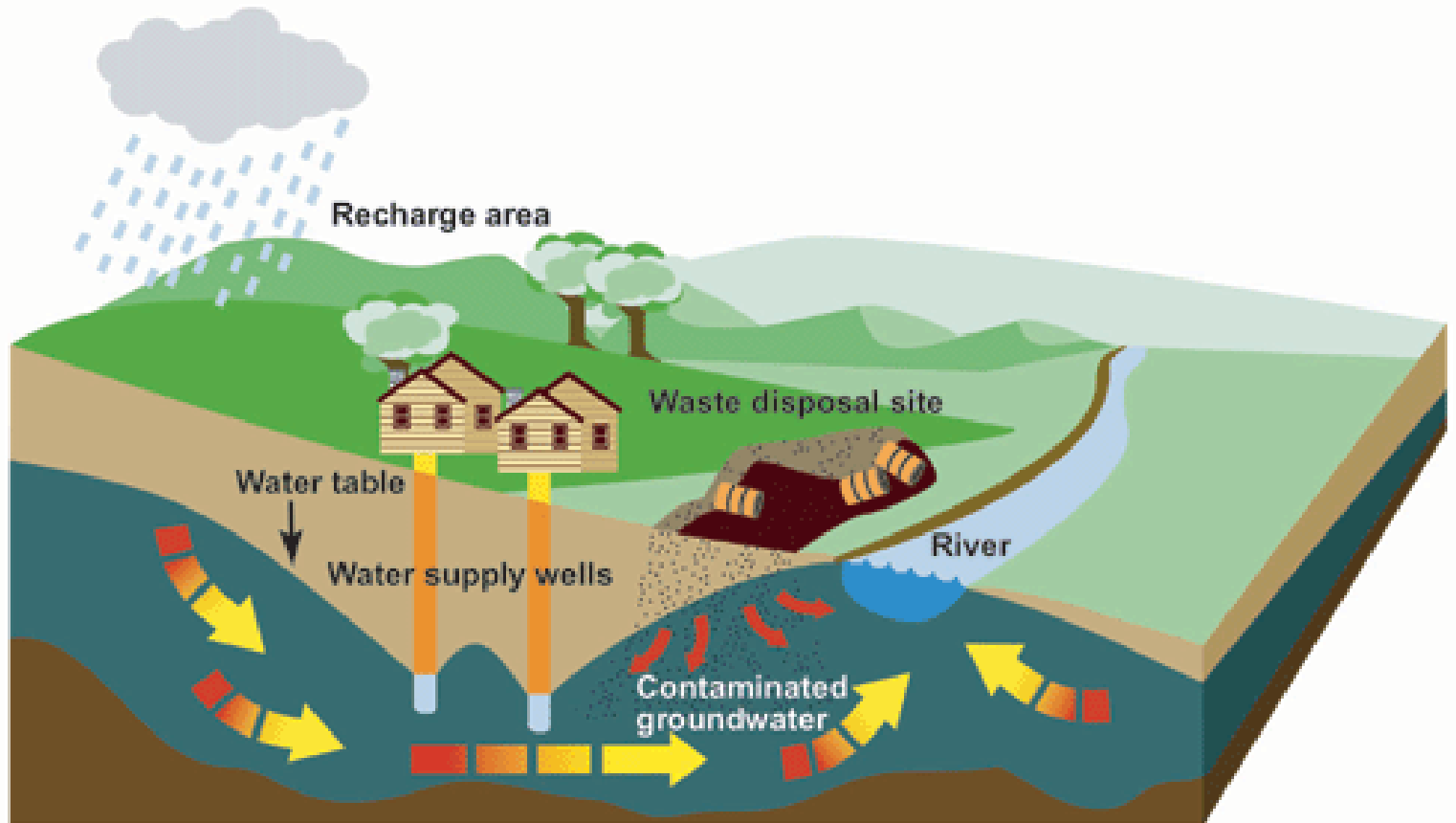
Identify Risks

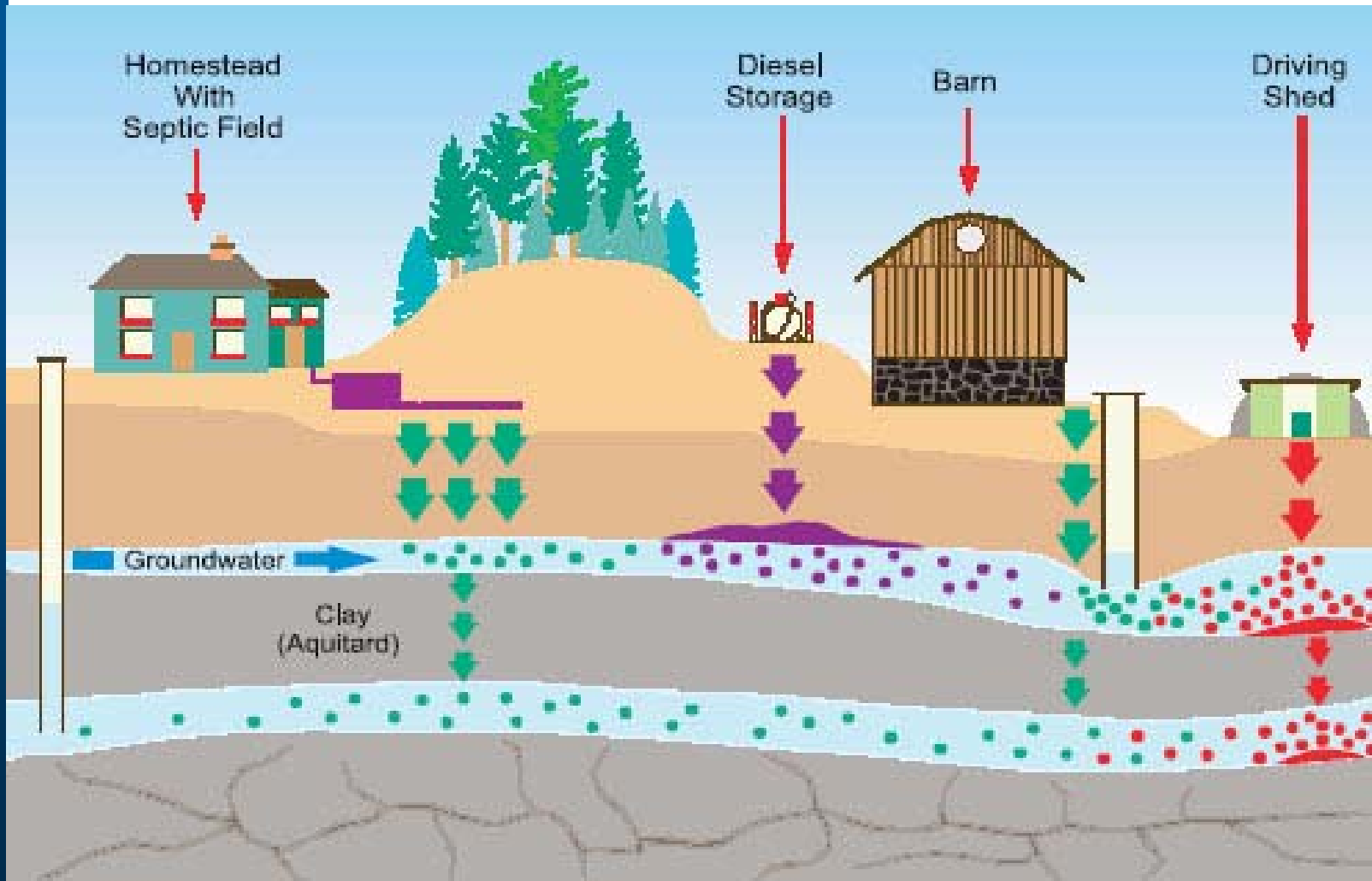
- Understand how water enters your well
 - Recharge area
 - Keep surface water out!
 - The deeper the well, the longer it takes surface water to enter the well

Assume all untreated surface water is unfit for consumption

How is Groundwater Susceptible?

Groundwater contamination from a waste disposal site









Understanding your water quality

- Source water from wells sampled at least every other year
 - Major ions; nutrients; metals
- Annual bacteriological samples
 - Each spring
 - Can indicate surface water infiltration

Early Warning System!

Why do we need wellhead protection?

- Safeguard drinking water supplies
- Manage groundwater resources – quality and quantity
- Integrate with land-use planning
- Preventative
- Enforcement

Designation process

- Application from Town or LSD
- In-house, designate proposed area
- Process through Interdepartmental Land Use Committee
- Notice of Wellhead Protection – with details
- Guidance provided to community

Large town/Small town

- Larger towns-
 - Studies to evaluate aquifer system
 - Define area based on hydrogeology and recharge areas
 - May designate up to three zones
- Smaller towns-
 - No studies (costly), little data available
 - Pump test data?
 - Area of protection around well, based on population, other criteria

Benefits

- Permit required from WRMD for development activity in protected area
- Town can oversee development in vicinity of well(s) to ensure protection of resource

Thank you!

Questions?

For additional questions:

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