

# Groundwater Protection

History, Rules and Strategy

# 10 V.S.A. Chapter 48 Groundwater Protection: 1965

- ▶ Subchapter 1 - Policy, Definitions; public trust added (2008)
- ▶ Subchapter 2 - General:     Comprehensive Groundwater Management Program  
                                  Classification of Groundwater  
                                  Groundwater Protection Rule and Strategy  
                                  Groundwater Coordinating Committee
- ▶ Subchapter 3 - Licensing of Well Contractors and Standards for Well Construction,  
                                  Water Well Advisory Committee
- ▶ Subchapter 4 - Groundwater Cause of Action
- ▶ Subchapter 5 - Interim Groundwater Withdrawal Program (repealed)
- ▶ Subchapter 6 - Groundwater Withdrawal Program

# Comprehensive Groundwater Management Program

Eight Statutory Tasks were created to Manage and Protect Groundwater Resources - split into two Strategies:

Groundwater Protection Rule and Strategy

Strategy for Groundwater Management

# Eight Tasks in Detail

## Strategy for Groundwater Management

- ▶ Task 1: Develop Strategy
- ▶ Task 2: Continue Studies of Groundwater Resources
- ▶ Task 3: Interagency Collection and Compilation of Data
- ▶ Task 4: Identification and Mapping of Groundwater Resources
- ▶ Task 5: Technical Assistance and Planning for Municipalities
- ▶ Task 8: Compilation of Information and Educational Materials for the Public and Cooperate with Federal Agencies

## Groundwater Protection Rule and Strategy

- ▶ Task 6: Adoption of Technical Criteria and Standards
- ▶ Task 7: Integration of Groundwater Protection Consideration into Regulatory Programs

# Groundwater Protection Rule and Strategy

- 1) Solid Waste Management Rules
- 2) Hazardous Waste Management Regulations
- 3) Underground Storage Tank Rules
- 4) Aboveground Storage Tank Rules
- 5) Salvage Yard Rule
- 6) Underground Injection Control Regulations
- 7) Indirect Discharge Rule
- 8) Storm water Management Rule
- 9) Storm water Management Rule for Storm water-Impaired Waters
- 10) Wastewater System and Potable Water Supply Rules  
but only for wastewater systems; and
- 11) Sites Management and Brownfields program

“The one rule to rule them all”



# Classes of Groundwater

- ▶ **Class I.** Suitable for public water system. Character uniformly excellent. No exposure to activities which pose a risk to its current or potential use as a public water system.
- ▶ **Class II.** Suitable for public water system. Character uniformly excellent but exposed to activities which may pose a risk to its current or potential use as a public water system.
- ▶ **Class III.** Suitable as a source of water for a potable water supply, irrigation, agricultural, and general industrial and commercial use.
- ▶ **Class IV.** Not suitable as a source of water for a potable water supply but suitable for some agricultural, industrial, and commercial use.
- ▶ Unless reclassified, all groundwater in the State is **Class III.**

## Groundwater resources are now held in trust for the Public

- 1) Specific uses of groundwater are protected, such as withdrawals for public emergency, domestic use, farming, dairy processing, water supplies and geothermal (not open loop).
- 2) The Secretary shall not permit an activity that discharges to soil or groundwater that exceeds the Groundwater Enforcement Standard unless part of a remediation or corrective action plan.
- 3) General presumption of compliance: Program rules need to establish an activity will not adversely impact public trust uses through **performance or technical standards or best management practices**.
- 4) Wastewater systems have the presumption of compliance.
- 5) The Secretary has the Public Trust Right of Action to assess damages against a person responsible for a discharge that adversely affects a public trust use.

# Management of Groundwater

- ▶ Class I, II and IV groundwater areas shall be identified and reclassified.
- ▶ The Secretary shall not permit high or moderate potential risk activities or wastewater systems in Class I or II areas (unless some conditions are met for moderate potential activities in Class II areas).
- ▶ The Secretary shall not permit high potential risk activities in Class III or IV areas unless the activity will not exceed groundwater enforcement standards at points of compliance.
- ▶ The Secretary shall not permit potable or public water sources in a Class IV area.
- ▶ The Secretary may participate in Act 250/Act 248 proceedings when a proposed project is determined that it may pose a risk to groundwater quality.

# Reclassification of Groundwater

- ▶ The Secretary encourages reclassification of groundwater to Class I and II to protect areas for current and future use as public water sources.
- ▶ The Secretary supports reclassification of groundwater to Class IV to protect human health and returning groundwater to Class III as soon as practical.
- ▶ The Secretary shall reclassify areas to Class IV when groundwater enforcement standards are exceeded at compliance point(s) unless specific conditions are met such as:
  - Institutional Controls are implemented;
  - The contamination is not due to human actions; or
  - The contamination poses a low risk (with conditions).
- ▶ Some areas may be **Technically Impractical** to achieve complete remediation.

# Reclassification Process

- ▶ Reclassification requires:

- A petition;

- Site and aquifer characterization, maps, contaminant risks, etc.;

- Technical and supplemental reports;

- Public notice, comment period and meeting, if requested;

- Posted reclassification decision by the Secretary; and

- Legislative approval for Class I areas.

- ▶ Following a LEAN Event, the Class IV reclassification process has been shifted from the Groundwater Coordinating Committee to DEC as part of the development of a Corrective Action Plan.

- ▶ The Secretary may consult with the Groundwater Coordinating Committee on petitions for reclassification.

# Groundwater Enforcement Standard Development

Groundwater Enforcement Standards are set by EPA for drinking water or VT Department of Health as a **Vermont Health Advisory**.

EPA develops a **Maximum Contaminant Level (MCL)** or **Maximum Reporting Detection Limit (MRDL)** for a chemical using a health based risk assessment. This assessment is generally based on a life time exposure - 70 years of drinking 2 liters of water per day.

If a chemical doesn't have an MCL, the Vermont Department of Health may use their own risk assessment process to establish a VHA.

The list of chemicals and GES values in Appendix One are provided by the Vermont Department of Health and adopted without change.

# Groundwater Enforcement Standards

- ▶ **Preventive Action Levels** are an “early warning” system and are set by VDH as either 10 % or 50 % of the Groundwater Enforcement Standard based on the whether the chemical has carcinogenic, mutagenic or developmental toxicity or not.
- ▶ Interim Groundwater Enforcement Standards may be set and **Background Groundwater Quality** may be determined through detailed site assessments.
- ▶ **Compliance Points** for an activity (discharge) may be drinking water sources, Class I, II, IV boundaries, property boundary, Zone 2 of a Source Protection Area or prescribed distances from landfills, injection wells, underground storage tanks, etc.
- ▶ A few specific chemicals have **Vermont Action Levels** when the compliance point is a drinking water source and is used as the Groundwater Enforcement Standard.
- ▶ Preventive and Corrective Actions are defined and required when a GES or Preventive Action Level is reached or exceeded.

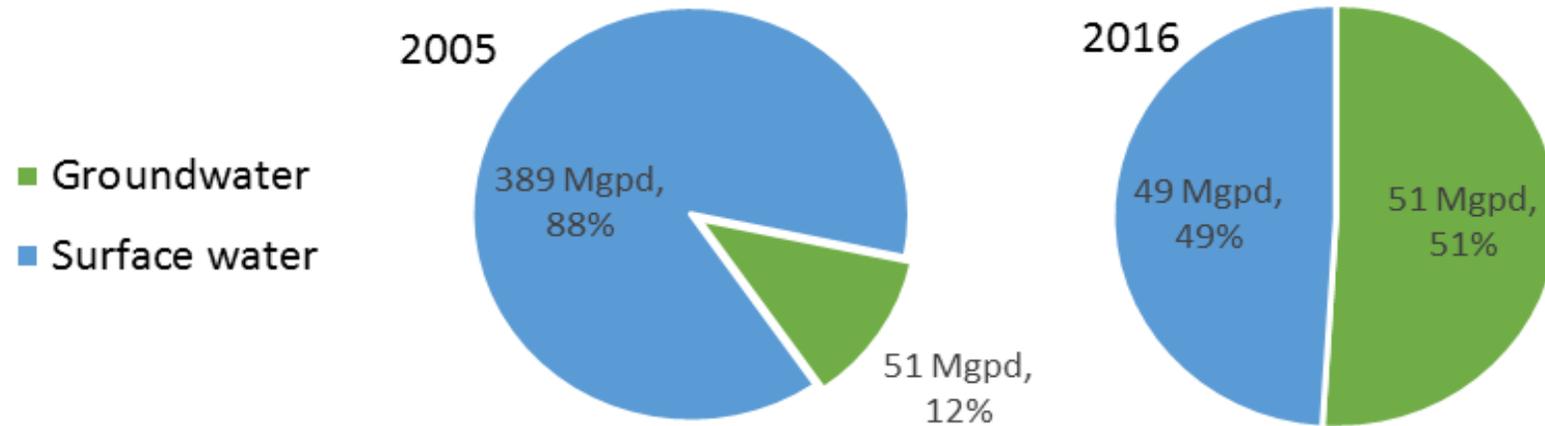
Malcolm MacGregor - the future



# The Strategy for Groundwater Management 2017

The groundwater of Vermont is a *precious, finite, and invaluable resource* upon which there is an ever-increasing demand for present, new and competing uses.

# Groundwater and Surface Water Withdrawals



Percentage of Vermont water withdrawals pre (2005) and post decommissioning of Entergy Vermont Yankee (2016).

# Management Considerations

Surface water and groundwater need to be effectively managed as integrated resources.

Groundwater quality and quantity are interdependent and need to be considered in an integrated manner.

Land use decisions can affect quality and quantity of groundwater.

Groundwater science is fundamentally interpretive given that the resources is not directly observable.

Funding to assist in state and local groundwater management and expand groundwater investigations is currently limited.

Few mechanisms are in place to support and encourage coordination of groundwater management and protection efforts within groundwater basins. Vermont's surface water tactical basin plans may provide a good framework for a similar approach for groundwater management.

## OBJECTIVES

### A. Improve Information Available for Groundwater Management Decisions

#### Continue Studies of Groundwater Resources (2)

1. Update Vermont water use information
2. Expand inorganic investigations (primarily Fe, Mn, As, radionuclides)
3. Evaluate regional impacts from well interference
4. Evaluate contamination issues as requested
5. Explore funding sources

#### Interagency Collection and Compilation of Data (3)

1. Determine sources of useful data
2. Identify data needs
3. Develop quality assurance and quality control protocols
4. Improve existing databases and expand access
5. Develop additional tools (databases, online submissions etc.)

#### Identification and Mapping of Groundwater Resources (4)

1. Develop additional regional groundwater favorability maps
2. Map-base aquifer and water quality data interface
3. Statewide recharge rate and area assessments
4. Assess aquifer storage capacities

### B. Protect Public Health and Safety and the Environment

#### Adoption of Technical Criteria and Standards (6)

1. Evaluate unpermitted activities
2. Work with non-Agency permitting groups
3. Review of technical standards that meet public trust test
4. Maintain Agency fluency in best management practices for groundwater

#### Integration of Groundwater Protection Consideration into Regulatory Programs (7)

1. Establish system for rule review
2. Coordinate communications between DWGPD and watershed programs
3. Facilitate legislative and rule review

### C. Expand Communications

#### Technical Assistance and Planning for Municipalities (5)

1. Incorporate source protection plans into town plans
2. Provide outreach on new technical standards from rules (GWPRS, potable and water supply rules)
3. Establish a system of regular municipal and regional outreach on groundwater protection strategies.

#### Compilation of Information and Educational Materials for the Public and Cooperate with Federal Agencies (8)

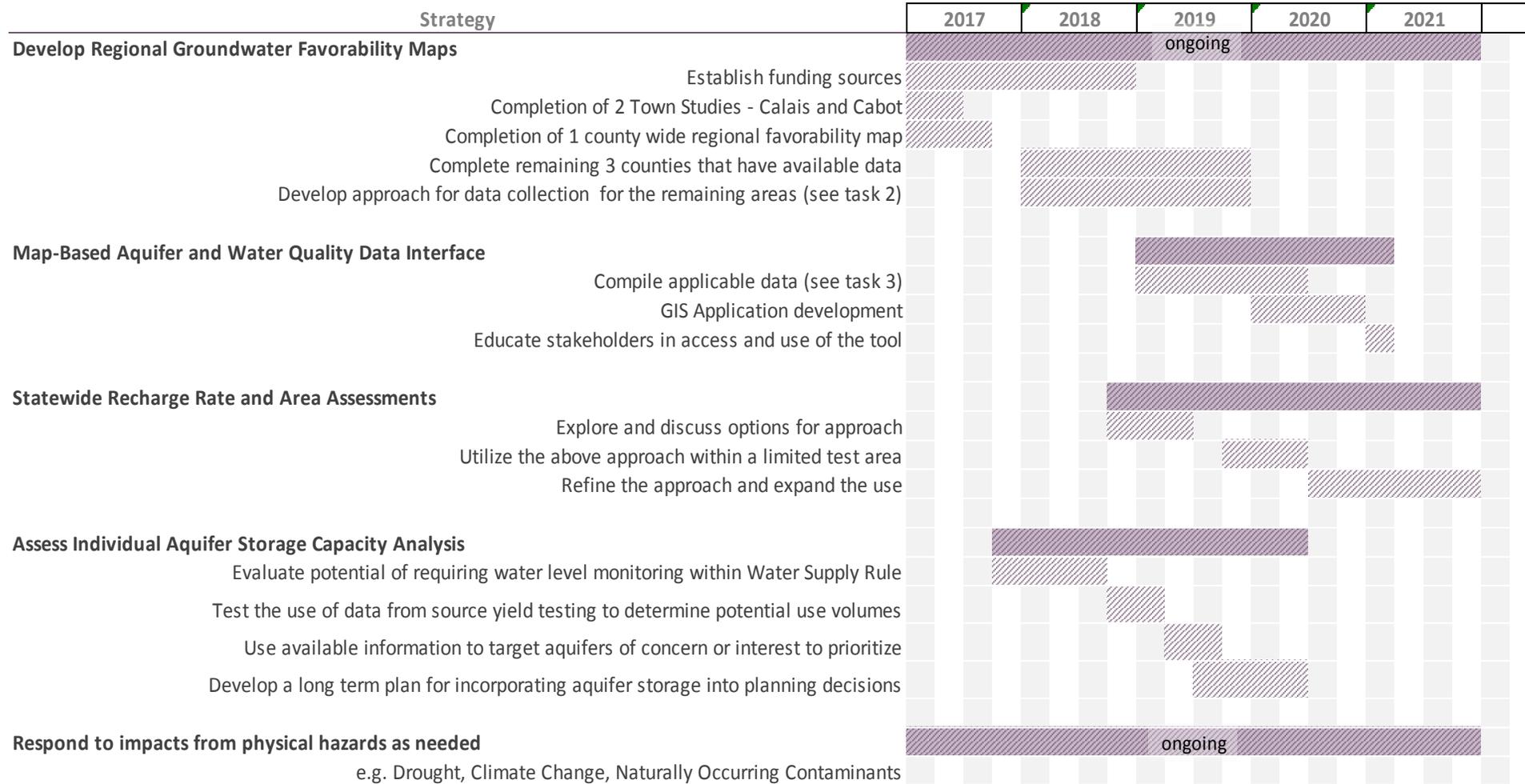
1. Improve accessibility to resources
2. Coordinate private well conference
3. Actively participate in well drillers meeting
4. Promote activities of Agency technical groups.

## GOAL

Make actionable suggestions that ensure groundwater resources are sustainable both in quantity and quality and that groundwater use does not harm water quality or unreasonably limit future Vermonters access to these groundwater resources.

# Implementation Plan

## Identification and Mapping of Groundwater Resources (Task 4)



This is a dynamic document with measurable actions over short and long term timeframes

Strategy for GW Management brought to you by the Groundwater Coordinating Committee:

Scott Stewart - Chair

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