Connecticut’s Aquifer Protection Area Program - A Training Refresher

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Outline of Presentation

• Aquifer Basics
• History and an Overview of the Aquifer Protection Area Program
• Next Steps for Municipalities
• Training Opportunities
• Contact Information
Aquifer Basics - What is an Aquifer?

An aquifer is any geologic formation (rock or sediment) that can yield a usable amount of water.

BEDROCK – High yield if large spaces or cracks; low yield if few interconnected cracks.

GLACIAL TILL – Low yield due to insufficient, poorly connected pore spaces

STRATIFIED DRIFT – High yield if coarse-grained sand and gravel; low yield if fine sand, silt or clay.
Types of Aquifers in Connecticut

**Stratified drift**
- Glacial sand & gravel deposits that fill the major river valleys
- Highest yielding aquifers

**Till**
- Low yield due to insufficient, poorly connected pore spaces

**Bedrock**
- High yield if many connected fractures, low yield if few connected fractures
Importance of Aquifers:
• Significant source of existing public drinking water
• Primary source of future public drinking water

Vulnerability of Aquifers:
• Shallow, unconfined and highly porous
• Pollution threats from some local land use activities
Aquifer Pollution Threats

Industrial Operations

Underground Storage Tanks

Handling/Storage of Chemicals

Filling Stations
History and an Overview of the Aquifer Protection Area Program
Aquifer Protection History

1970’s
Contaminated Wells

1980’s Federal
& State
Initiatives to
protect
aquifers

1986 Federal
Safe Drinking
Water Act
requires states
wellhead
protection
programs

1989 CT
Aquifer
Protection
Area Act (CGS
22a-354)

2004 CT
Aquifer
Protection
Area Land Use
Regulations
(RCSA 22a-354i)
Overview of the APA Program

The program’s purpose is to identify major existing public water supply aquifers and to protect them from pollution by managing specific land use activities occurring nearby.

This was accomplished by:

• Establishing “aquifer protection areas” around major public water supply well fields in certain types of aquifers
• Establishing municipal Aquifer Protection Area Agencies to implement the program
• Requiring existing activities which involve the use, storage, handling, or disposal of hazardous materials or other potential aquifer contaminants to register with the municipality (or State) and follow best management practices or standards designed to minimize the possibility of polluting the aquifer

The Aquifer Protection Area Program regulates activities that are conducted at businesses.
What’s an Aquifer Protection Area?

It’s the critical portion of the aquifer which provides water to the well.

Aquifers protected under the program must meet the following criteria:
- the aquifer must be a stratified drift aquifer,
- the aquifer must contain an existing well used by a public water system, and
- the existing well must serve a population of 1,000 or more

Example
Statewide APA Overview

80 CT towns have Aquifer Protection Areas

127 Aquifer Protection Areas in CT making up about 2-3% of the state’s land area

1,800 potentially regulated “facilities” in CT (a “facility” is a property where one or more activities regulated under the program is being conducted)
This map shows Connecticut’s Aquifer Protection Areas, as delineated through the Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1,000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it will replace the Level B Mapping. Towns that have adopted the Aquifer Protection Areas at the local level and for which land use regulations are now in place are designated by the solid red above and in red in the list of Towns with Aquifer Protection Areas. Wellhead protection areas in Massachusetts and Rhode Island are shown for informational purposes only.
Who’s involved in implementing the APA Program?

**Water Companies/Public Water Utilities:**
- Conduct mapping of aquifer protection areas
- Provide technical assistance to municipalities

**Municipalities:**
- Designate an Aquifer Protection Agency, Adopt APA maps
- Adopt and implement APA regulations
- Register and permit regulated activities
- Ensure compliance with BMPs, conduct site inspections, enforcement

**CT DEEP:**
- Administers APA program statewide
- Provides technical assistance, guidance and training to municipalities
- Registers and permits major facilities and State facilities (DEEP, DOT, DOE, DOC, DDS, DMHAS, CT Military Dept.)
- Ensure compliance with BMPs, conduct site inspections, enforcement
What is regulated?

Generally, existing **activities** that involve the use, storage, handling, or disposal of hazardous materials or other potential contaminants of the aquifer will be subject to Aquifer Protection Area Regulations. These are called “regulated activities”.
What are some examples of Regulated Activities?

Vehicle/engine repair and maintenance
Oil or petroleum dispensing
Underground storage tanks
Metal production or fabrication
Metal plating
Metal or vehicle salvaging
Degreasing of parts or equipment
Use/storage of dry cleaning solvents
Loading/mixing/storage of pesticides
Warehousing/bulk storage of chemicals
Finishing/striping of furniture
Production/refining of chemicals
Are there any exceptions?

Yes, possible exceptions include:

- certain activities allowed if connected to public sewer (e.g., car wash)
- certain “as-of-right” activities (e.g., residential, agricultural)
- conditional (i.e., volume thresholds)
Is there a list of all regulated activities?

Yes, all 28 regulated activities are listed in the Aquifer Protection Area Regulations.

There is a table of regulated land use activities in Chapter 14 Appendices of the Connecticut’s Aquifer Protection Area Program Municipal Manual prepared by CT DEEP.
Who should register?

• Businesses located in the Aquifer Protection Area that are conducting regulated activities are required to register

• The Aquifer Protection Area Registration “grandfathers” the activity by allowing the business to continue to operate

• Registration renewals are every 5 years
Next Steps for implementing the Aquifer Protection Area Program
Next Steps

1. Hold regular meetings of the Aquifer Protection Agency

2. Create a new Aquifer Protection Agency webpage – list members and their terms, meeting agendas and minutes, zoning map with APA mapped boundary, APA regulations, registration forms, contact information, and link to DEEP’s APA website

3. Amend Municipal Aquifer Protection Area Regulations to be consistent with State APA Regulations – 2010 Model APA Regulations
4. Compile a list of businesses (an inventory) of all potential registrants – use tax assessor’s list; check UCONN’s website CT ECO; check fire marshal's list of businesses with haz mats – send letter, call and email to inform owners

5. Conduct site inspections to ensure compliance with Best Management Practices

6. Register businesses that are conducting regulated activities by issuing a cover letter and certificate (send copies to DEEP, DPH, Water Utility)
CT DEEP Aquifer Protection Area Program Technical Training

Take the training course today!
To register,
visit https://clear.uconn.edu/training/DEEP_APA_training.htm
For more information

DEEP’s APA website:
https://portal.ct.gov/DEEP/Aquifer-Protection-and-Groundwater/Aquifer-Protection/Aquifer-Protection-Program

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