DWSRF and Capacity Building in Action: Source Water Protection

July 28, 2021
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Check out https://www.epa.gov/dwreginfo/drinking-water-training for more drinking water webinars and trainings.
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PLEASE DIRECT YOUR QUESTIONS TO "Q AND A MODERATOR"
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Learning Objectives

• Leveraging the Drinking Water State Revolving Fund Set –Asides for Source Water Protection
  
  *Kara Goodwin, EPA HQ*

• State Example:
  
  • Tennessee’s State Revolving Fund and Source Water Protection Synergy
    
    *Brian Ham and Vena Jones, Tennessee Department of Environment and Conservation*

  • North Carolina’s Drinking Water Protection Program
    
    *Danny Edwards, North Carolina Department of Environmental Quality*

• Q&A at the end of the presentation.
What is Source Water Protection?

- Part of a multi-barrier approach to clean drinking water
- Voluntary—no implementation requirements under SDWA
- A watershed investment program

Healthy Watershed = Clean Drinking Water
Source Water Assessments: 1996 to Now

Changes within source water protection areas
- New tools and technology available
- New risks to consider

Inform SWP plan development
- Prioritize areas for investment
- Identify partners

Congress recognized need for updates → changed language for DWSRF set-asides

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Drinking Water State Revolving Fund

A Public Health Protection Program

A federal/state partnership designed to create, in each state, a perpetual source of financing for drinking water infrastructure

Modeled after the successful Clean Water SRF program, with notable modifications
The DWSRF Infrastructure Model

• 51 state-level “infrastructure banks” make loans with water systems for drinking water projects
  • Water systems apply for funding with their respective state DWSRF program
  • States craft their DWSRF program to meet the needs of their state
    • Each of the 51 programs are unique
    • They operate within the federal framework but may target funding more narrowly
DWSRF Set-Asides

- Optional for States
- Trade-off with Loan Funds
- Different Eligibilities than Loans
- Unique to Drinking Water SRF

2%: Small Systems Technical Assistance
4%: Administration & TA
10%: State Program Management
15%: Local Assistance and Other State Programs
State Program Management (10% Set-Aside)

**Develop and Implement** Drinking Water Protection, Capacity Development, Operator Certification, and Source Water Protection Programs

Often Used to **Fund Staff**
- Source Water Coordinators
- Hydrogeologists

Can also be used by state for source water protection activities
Local Assistance and Other State Programs (15%)

**Source Water Protection** and Capacity Development Activities

- Loans to PWS for SWP land acquisition/easements, voluntary, incentive-based SWP measures, and source water petition programs

- Delineation, assessment, and *updates to assessments* for SWP areas

- Provide assistance as part of a capacity development strategy

- Establishment and implementation of wellhead protection programs and *implementation of efforts to protect source water*
Local Assistance and Other State Programs (15%)

**Source Water Protection** and Capacity Development Activities

- Developing Source Water Protection Plans
- Small grant programs
- Technical Assistance through 3rd parties
- Implementation of BMPs
- Updating SWA with GIS
- Development of local ordinances
- Public outreach and education

Cover crops around high-risk public wells in Sussex County, DE
Small Investments Can Go a Long Way

- Think long-term
- Account for multiple benefits
- Consider funding sources outside your program
Now is the time for conversations between SWP programs and the DWSRF administrators in states about the opportunities to dedicate set-aside money for source water protection.

EPA encourages states to re-think how they are utilizing their set-asides and consider new opportunities for leveraging these dollars for source water protection.
How to get started

Reach out to your DWSRF or SWP colleagues
https://www.epa.gov/dwsrf/state-dwsrf-website-and-contacts
https://www.epa.gov/sourcewaterprotection/source-water-contacts-epas-regional-offices

States submit a Set-Aside Workplan as part of their capitalization grant application

Identify priority areas/systems to update assessments and develop plans
QUESTIONS?

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epa.gov/sourcewaterprotection
epa.gov/dwsrf
State Revolving Fund and Source Water Protection Synergy

July 28, 2021

Vena Jones, PG
Brian Ham, PG, GISP
Division of Water Resources
Strategic Use of SRF Funds

- Expansion of Source Water Protection use of funds through AWIA
- TDEC mission and priorities
- DWR mission and priorities

Drinking Water - SRF partnership to strengthen SWP program and increase use of set asides for SWP projects
• Gather a team of multi-agency partners:
  ✓ Tennessee Department of Environment & Conservation (TDEC)
    ✓ Drinking Water Program
    ✓ Engineering Services
    ✓ Stormwater
    ✓ Commissioner’s Office
  ✓ Tennessee Department of Economic and Community Development (ECD)
  ✓ Tennessee Office of the Comptroller
  ✓ TN USDA-Rural Development
Create DW SRF priorities based on team input

- SRF Technical Advisory Team
- Target Small and Disadvantaged Communities (SDCs)
- Water loss
- Asset Management
- **Regionalization**
- Drinking Water Optimization
- **Source Water Protection**
- Improved Planning and Design
- Early Coordination
Growing the Source Water Program

Strengthen Source Water Protection Program

Gather Technical Advisory Group and identify priorities

Summer 2019

Collaborate with Drinking Water Program to identify funding priorities

SFY 2020

Expand use of Local Assistance Set Asides for Source Water Protection

SFY 2021

Build partnership with TN Dept of Ag, 319 program – NPS and source water

SFY 2020

Build a funding mechanism through Local Assistance set asides to provide loans or grants for land acquisition and conservation projects

SFY 2022-2023

Include SWP in Intended Use Plan Goals

SFY 2020-Present

Review statute and ranking system for updates

SFY 2022-2023

Increase Funding through Local Assistance Set Asides

SFY 2020

Strengthen Source Water Protection Program

SFY 2021

Build a funding mechanism through Local Assistance set asides to provide loans or grants for land acquisition and conservation projects

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SFY 2022-2023

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SFY 2020
Source Water Protection

• Chapter 0400-45-01-.34
  – Public Water Systems – Drinking Water Source Protection
    • Surface Water Source
      – Source Water Protection Plan
    • Groundwater Source
      – Wellhead Protection Plan
“Critical Source Water Protection Zone” means the surface water body and adjacent land area from one half (1/2) mile downstream of the intake to five (5) miles upstream of the public water system intake, including a one thousand (1000) foot corridor parallel to the designated stream banks and any perennial streams which are tributaries to that stream.

“Significant Potential Contaminant Source” means a facility or activity that involves the handling of materials that could readily be introduced into the water supply source via spill, leakage, intentional discharge or other release of contaminants and presents a likely threat to drinking water quality and the public health.

– Significant potential contaminant sources would include, but not be limited to, the following: automotive shops, service stations, automotive body shops, junkyards, salvage yards, machine shops, metal fabrication shops, chemical manufacturers, electronic and electrical equipment manufacturers, boat manufacturers, oil distributors, petroleum bulk stations and terminals, bus and truck terminals, storage or mixing areas for commercial fertilizers, pesticides and herbicides; landfills, construction debris landfills, dumps, sludge spreading or landfills; facilities that generate, treat or dispose of hazardous waste; concentrated animal feedlots, golf courses, and mining areas.
The Wellhead Protection Program was established to protect public water systems using ground water from contamination. This program has an emphasis on the prevention of ground water contamination due to the difficulty in cleaning up the contamination once it occurs. These drinking water sources are vulnerable to a variety of contaminant sources such as industrial spills, shallow underground injection discharges (referred to by EPA as class V (5) wells) through wells, floor drains and septic tanks, leaks from underground storage tanks, etc.
Wellhead Protection Areas

- Wellhead Analytic Element Model (WhAEM)
- Area Delineation
  - Radius
  - Uniform Flow Models
  - Hydrogeology
Contaminant Source Inventory
Funding for 5-year Interagency Agreement with USGS for Source Water Protection

Objectives:

- Update the Statewide Source Water Assessment via a Geographic Information System (GIS) Analysis and associated report
- Launch a pilot system of real-time observation wells in aquifers used for public water system production which will be designed to monitor drought conditions in critical and historically affected areas
- Provide technical assistance to implement efforts to protect source water and delineate, assess, and update Source Water Protection Areas (Wellhead Protection Areas or Critical Source Water Protection Zones)
SRF and Source Water Protection Collaboration

A proposal submitted to: Tennessee Department of Environment & Conservation (TDEC)
Division of Water Resources

Developing a Source Water Assessment Program
Geographic Information Systems Model for the Tennessee Department of Environment and Conservation
Monitoring Groundwater Resources in Tennessee – Expanding the Statewide Network of Water-Level Observation Wells and Springs
SRF and Source Water Protection Collaboration

Evaluating of hydrogeologic conditions in source water protection areas in Tennessee
Collaboration with Partners

Conservation Project Funding

[Logos of various organizations]
Questions?

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• DWSRF Set-asides are a significant source of funding for the NC Drinking Water Protection Program.

• NC Drinking Water Protection Program
  • Source Water Assessment Program
    • SWAP Model Update
  • Source Water Protection Planning
    • Voluntary Source Water Protection Plans
    • Mandatory Source Water Protection
  • Wellhead Protection Program
Overview

• NC Drinking Water Protection Program (cont’)
  • NC Source Water Collaborative Awards Program
  • Collaborating with the Natural Resources Conservation Service
Source Water Assessment Program
• SWAP reports updated approximately every two years

• PCS inventory is also updated

• Current SWAP reports are available through the DWPP website

• Interactive Map App for accessing SWAP data
Source Water Assessment Program (SWAP)

North Carolina’s Source Water Assessment Program (SWAP) provides detailed assessments of all public drinking water intakes in the state. These assessments include a Susceptibility Rating to indicate the relative risk of source contamination. Our SWAP data is readily available to help define environmental priorities and projects that may prevent pollution. We have concise and current reports downloadable from this web page. Any local effort to protect drinking water should begin here.

- Learn more about NC’s SWAP
- View the SWAP Brochure
- Source Water Assessment Reports
- Source Water Assessment Mapping Tool
- Original USGS Methodology
- USGS Methodology Update - 2009

Wellhead Protection (WHP) Program

The NC Wellhead Protection (WHP) Program functions to protect groundwater sources of drinking water from contamination. Wellhead protection is simply the protection of all or part of an area surrounding a well from which the groundwater is drawn. The size of this area will vary based on the potential threat and source protection requirements. The WHP Program is intended to ensure that ground water that is protected from contamination is delivered to drinking water supplies.
Department of Environmental Quality
Division of Water Resources
SWAP Model Update
• Updating/Redeveloping the SWAP Model:

  • Incorporating more recent data

  • Revising input components where relevant improvements have been identified
SWAP Model Update

• Example Updates to the SWAP Model:

  • Contaminant Rating Method – Raw PCS counts in assessment areas vs. proximity-based or density-based methods

  • Unsaturated Zone Rating (UZR)/Watershed Characteristic Rating (WCR) component data layer updates – Annual Average Precipitation, Land-surface Slope, Land Cover, Land Use, Vertical Hydraulic Conductance

  • Groundwater Assessment Area Delineation – Minor update to method of delineation for semi-confined aquifers that receive recharge from stream infiltration zones

  • Groundwater Source Rating - Revise methodology for determining the level of confinement in coastal plain aquifers based upon newer data sources.

  • Well Integrity/Construction Rating – Update rating method for Transient, Non-Community (TNC) water systems based upon siting requirement rule changes in 2008.
Source Water Protection Planning
NC Voluntary Source Water Protection Plans

- 10 approved plans
- 13 systems covered by plans
- 439,795 - population served by systems covered by plans

Department of Environmental Quality
Division of Water Resources
Mandatory Source Water Protection

HB894

§ 130A-320 (c)
Every supplier of water operating a public water system treating and furnishing water from surface supplies shall create and implement a source water protection plan (SWPP). The Commission shall adopt rules that provide all of the following:

- A standardized format…
- Schedules for creating and implementing mandatory provisions
- Reporting requirements
• Rule effective – January 1, 2019

• AWIA Section 2013 Guidance Released by EPA – August 2019

• Public Water Supply Section recognizes overlap and revises Rule .1305

• Final Rule effective – April 1, 2020
Wellhead Protection Program
• In NC WHP is voluntary and exceeds the protections provided by state regulatory programs

• Water systems with an approved WHP plan receive priority points when competing for loans and grants awarded by the NC Division of Water Infrastructure
  • applies to WHP plans approved within past 5 years

• The PWS Section, using Drinking Water State Revolving Fund (DWSRF) set-asides, contracts two NCRWA Groundwater Specialists to assist in the development of local WHP plans
171 public water systems have approved wellhead protection plans
NC Source Water Collaborative
Awards Program
Award Categories

- GW Planning
- GW Implementation
- SW Planning
- SW Implementation
- Education
- Leadership
NC Source Water Collaborative

NC Source Water Protection Award Winners

- 27 Projects have been recognized since 2015
- 3 Award Recipients were recognized during the 2021 NC Water Resources Research Institute’s Annual Conference (Virtual Event)

Department of Environmental Quality
Division of Water Resources
City of Durham, Department of Water Management; Triangle Land Conservancy; Eno River Association

Surface Water Implementation

Department of Environmental Quality
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Collaboration with the Natural Resources Conservation Service
Collaborating with NRCS

- NRCS State Technical Advisory Committee (STAC)
- NRCS STAC subcommittees
- Priority ranking points for projects located in source water assessment areas
- National Water Quality Initiative
- 2018 Farm Bill Source Water Priority Areas
Collaborating with NRCS - NWQI Watershed Selection
Collaborating with NRCS - NWQI Watershed Selection

Source Water Assessment Areas
- Town of Dallas
- City of Cherryville

Percentage of Watershed Covered by Source Water Assessment Areas
- Lower Indian Creek = 37%

Department of Environmental Quality
Division of Water Resources
Collaborating with NRCS – Source Water Priority Areas

2020 Source Water High Priority Areas

2019 Source Water Local Priority Areas
# NC Drinking Water Protection Program Team

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*Department of Environmental Quality*

*Division of Water Resources*
Thank You!

NC Drinking Water Protection Website
https://deq.nc.gov/about/divisions/water-resources/drinking-water/drinking-water-protection-program

Department of Environmental Quality
Division of Water Resources
THANK YOU FOR ATTENDING!
TIME FOR Q&A

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You may find additional drinking water webinars and resources at www.epa.gov/dwcapacity

Please stay at the end to take a 5-question survey