Florida’s Source Water Assessment and Protection Program

Bureau of Water Facilities Regulation
Florida Department of Environmental Protection
Source Water Protection Workshop 11/13/2008
What is the Source Water Assessment and Protection Program (SWAPP)?

- Source Water is untreated water used for public drinking water supply
- Program designed to prevent contamination at the source

Florida Photographic Collection:
http://www.floridamemory.com/PhotographicCollection
What Does This Cover in Florida?

Florida Photographic Collection:
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Approximately 6300 Public Water Systems Serving 16 million people
Definitions-Public Water System

- **Community** - Minimum 15 service connections or 25 residents, year round.
- **Transient Non-Community** – Minimum 25 people or 15 connections, flow-through traffic.
- **Non-Transient Non-Community** – Same 25 individuals for minimum 6 months/year.
24 Surface Water Intakes

Source: SWFWMD www.swfwmd.state.fl.us/watershd/reservoir
Approximately 10,000 public supply wells

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Many potential sources of contamination

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Background

- Florida began work on SWAPP in 1997
- EPA approved Florida’s Source Water Assessment Plan on April 1, 2000
- First statewide assessments completed in 2004.
- Next statewide assessment to be completed in 2008.
Four Components of Source Water Assessment

1. Delineate assessment areas around all public water system wells and surface water intakes.
2. Inventory potential contaminant sources.
3. Determine susceptibility of source water to each potential contaminant source.
4. Make results available to the public.
Problem: Devise a Florida SWAPP that can be accomplished with existing resources.
Florida’s Approved Program

- Geographic Information System (GIS) based
- Use existing DEP databases as starting point for information about potential sources
- After initial statewide survey, continue to repeat and update assessments
Component #1: Delineate Assessment Areas—Ground Water

- 500 foot radius circle for non-community systems (both transient and non-transient)
- 1000 foot radius circle for all community systems
- Add modeled 5 year ground water travel times for community systems serving 1,000 or more population
Component #1: Delineate Assessment Areas—Surface Water

- 72 upstream hour travel time *plus*
- 100 year flood plain *plus*
- 200 foot buffer
Example: Public Supply Wells
Surface Water Assessment Area Example

City of Melbourne Utilities, Lake Washington intakes on the St. Johns River
Component #1 Work Products

- Verified locations of about 10,000 public supply wells and surface water intakes
- Modeled 5 year ground water travel times for thousands of wells using existing regional models
- Matched DEP PWS database with WMD consumptive use databases to obtain permitted water use
Component #2: Inventory Potential Sources

- Use existing databases of potential point sources of contamination
- Minimum data needs:
  - electronic database
  - accurate location
  - facility information
Data Sources Used in First Assessments

- State Funded Clean-up Sites
- Superfund Sites
- Landfills
- Class I Injection Wells
- Regulated Petroleum Storage Tanks
- Large Quantity Generators (RCRA)

- Treaters, Storers and Disposers (RCRA)
- Delineated Ground Water Contamination Areas
- Brownfields
- Dry Cleaning Facilities
- Wastewater Facilities
New for 2008 assessments

• Class V Injection wells
• Small quantity generators of hazardous waste
• CAP/RAP sites
• CERCLIS sites

Orange County, 1974 Florida Photographic Archives
Locational Data Cleanup

- Developed web based GIS tool to allow verification and correction of locations
- Data verification teams in each District
- Over 100,000 locations verified
- Ongoing effort
Assessment Areas with Potential Sources
Component #2 Work Products

- Identified and cross referenced data elements in several different DEP databases
- Developed methods of verifying and updating locational data without hand data entry
- Verified locational data for 100,000+ potential contaminant sources
Component #3: Susceptibility Determination

• Assess which potential sources may pose a threat
• Provide a score for each potential source of contamination
• Rank potential source as high, moderate or low concern
Susceptibility Factors

- **Health effects** (toxicity and potential cancer risk) of a chemical of concern
- **Leaching potential** of a chemical of concern
- **Protection** provided by underlying geology (DRASTIC in 2004 assessments, FAVA starting in 2005)
- **Design and operating practices** of the site or facility
Component #3 Work Products

- Identified a contaminant of concern for each type of potential contaminant source
- Created a scoring method
- Created a GIS application to produce susceptibility score.
- Updated aquifer vulnerability assessment methodology -- FAVA
Component #4: Inform the Public

- Major component of program
- Reports to public water systems
- SWAPP website
- Consumer Confidence Reports
Source Water Assessment & Protection Program

SOPCHOPPY, CITY OF
P.O. BOX 99
SOPCHOPPY, FL 32358

County: WAKULLA

Public Water System Type: COMMUNITY
Public Water System Source: GROUND
Primary Use: MUNICIPAL/CITY
Population Served: 4246
Public Water System ID: 1650612
Size of Assessment Area:
GROUND: For this community system, a 5-year ground water travel time around each well was used to define the assessment area. The 5-year ground water travel time is defined by the area from which water will drain to a well pumping at the average daily permitted rate for a five year period of time.

Aquifer: FLORIDAN
Number of Wells: 7

Results:
A search of the data sources indicated this PWS was evaluated. Click record below to view details

Last updated: May 23, 2008
Component #4 Work Products

- 6,300 reports for public water systems
- Website to display information for the public
2004 Statewide Assessment Results

- One or more potential sources identified in 38% of public water systems
- No potential sources of contamination in 62% of public water systems
2004 Results – Public Water Systems with one or more potential sources of contamination

- Petroleum Storage Tanks: 69%
- Wastewater Treatment: 18%
- Ground Water Contamination: 7%
- Dry Cleaners: 5%
- All Others: 1%