# Delaware Department of Natural Resources & Environmental Control DIVISION OF WATER WATER SUPPLY SECTION

Clean Water Act/ Safe Drinking Water Act Integration

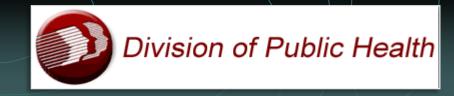
John T. Barndt, P.G. March 21, 2017

#### CWA/SDWA Coordination Examples

- Delaware Watershed Assessment Reporting –
   Groundwater Chapter (305 (b))
- Source Water Assessments for Streams used for Public Drinking Water
- Groundwater Resource Assessment Funding
- Discharge of Contaminated Water from Public Well Development from PWS

## (1) Delaware Framework for 305(b) Groundwater-Quality Assessments

- Per Clean Water Act, States must:
  - Assess groundwater quality "...to the extent practicable"
  - Report results every two (2) years
- Per U.S. EPA (1997) guidance, States should:
  - Use available "ambient" groundwater data
  - Account for hydrogeology
  - Consider water-quality criteria
- DNREC reporting methodology in place since 2008 utilizes SDWIS data linked to Source Water Assessments



#### Data sources

Water-quality data

**DNREC ID** 

AND ENVIRONMENTAL CONTROL

Raw-water tap

Well data: DNREC ID, X, Y, Z, & aquifer

#### Data sources

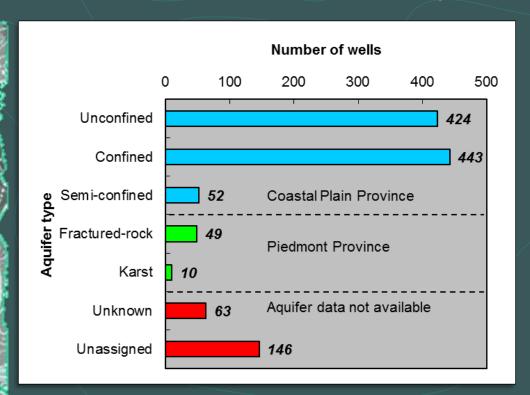
- SDWIS = source of water-quality data
- Basic chemistry
  - Nitrate
  - TDS
  - Chloride
  - Sodium
  - Iron
  - Hardness
  - pH

- Organic compounds
  - e.g., MTBE, TCE, benzene
- Trace elements
  - e.g., arsenic
- Radionuclides
  - e.g., radium isotopes

# Well network

#### Well network

- 1,187 active PWS wells
- Aquifer type known for 978 wells (82%)
- Most wells (77%) in Coastal-Plain aquifers
- ❖ 52% of wells located in Sussex County



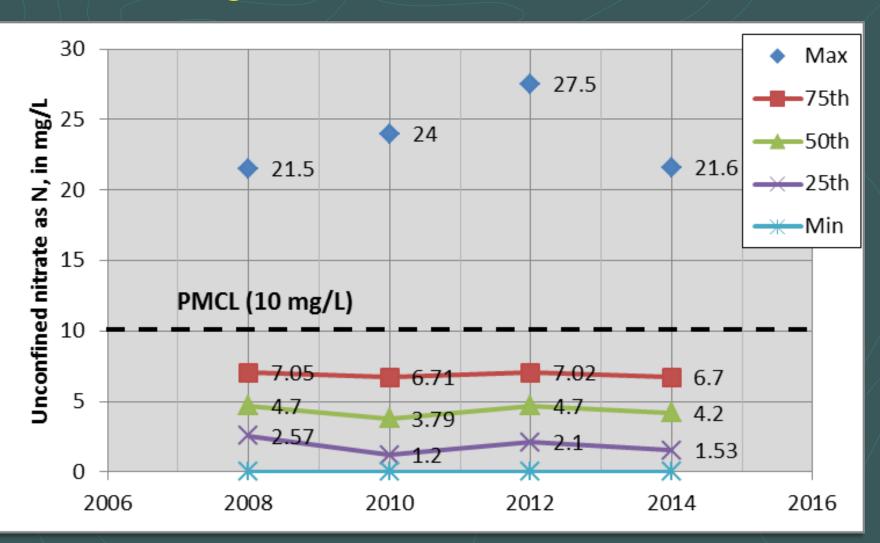
#### Trends

Spatial trends in nitrate in Coastal Plain wells

Unconfined wells

Confined & semiconfined wells

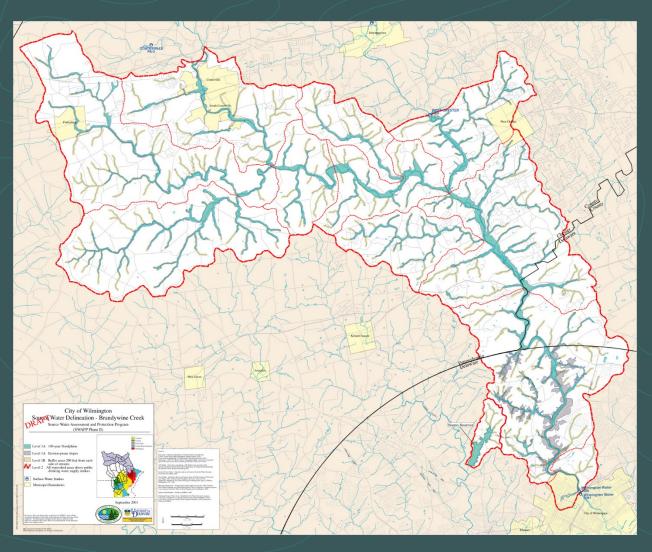
#### Trends e.g. Nitrate versus Time



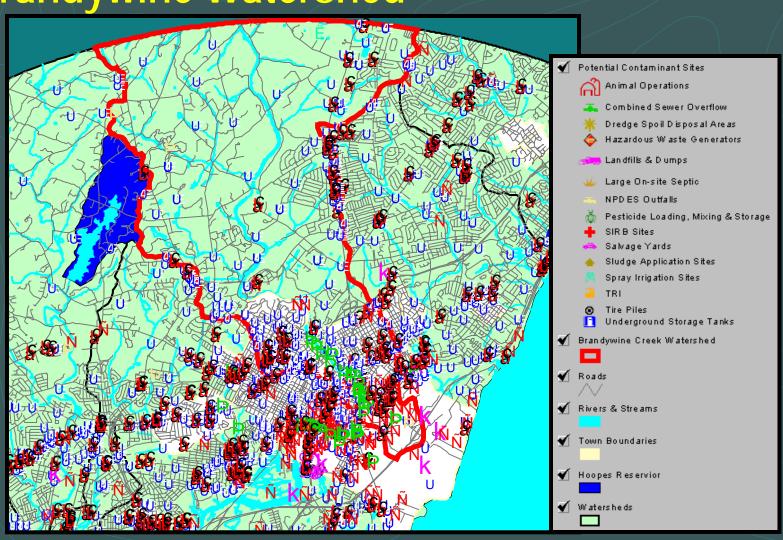
# (2) Source Water Assessments for Streams used for Public Drinking Water

- Delaware conducted source water assessments for streams in Northern Delaware that are used as major drinking water sources.
- Assessments are used across programs to address point and non-point source problems and for emergency response purposes.

# City of Wilmington Source Water(shed) Area



# Potential Contaminant Sites in the Brandywine Watershed



### (3) Groundwater Resource Assessment Funding – Both CWA 106 and SDWA-DWSRF 15% Set-aside

- Pesticides/Nutrients in Ground Water
- Lewes-Rehoboth WHP Modeling DGS
- SIRB PWS Sampling
- BMP Manual for SWP
- TEPP Well Database Migration
- Water Table Elevation Project 1&2
- Long Neck Area Mercury Study USGS/DGS
- Groundwater Recharge Mapping Project
- Potomac and Coastal Sussex Saltwater Monitoring projects
- Groundwater Monitoring Project

- Ground Water Availability in Kent County
- Ground Water Availability in Sussex County
- Hydrogeological Assessment Project for Eastern Sussex County
- SWAP Web Site
- EPA Polygon and Data Reporting Projects
- Arsenic in Delaware Soils
- Surface Water Source Water Assessments
- Evapotranspiration Project
- Road Salt Monitoring Project above PWS intake

# (4) Discharge of Contaminated Water from Public Well Development from PWS

- Required Coordination between Source water and NPDES Programs
- Limitations and Treatment prior to discharge to surface waters (PFOS/PFOA\*, in one instance)

\* Perfluoralkyl substances

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