



# Municipal Source Water Protection

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# Protect Groundwater From What?

- Pollutants?

or

- Nutrients?

# City of Waupaca's Story...

- 1996- City water use exceeded 3.3 mgd
- Waupaca Foundry use = 60% (for cooling)
- Loss of one well would cause the city not be able to meet average day demand!!!!
- 80% of water pumped from 2 rural city wells – town officials not too happy
- History of high nitrate levels from ag. land
- Groundwater drawn down to top of well pumps – breaking pump suction and depleting the aquifer!!!!

# What do we do next???

- Wellhead Commission formed (multi-jurisdictional)
- Wellhead Protection Study completed
- 8 monitoring well nests installed – 3 wells per nest (shallow, middle, deep)
- Quarterly sampling begun for nitrates- 10 ppm allowed
- Began attending township meetings – sharing information and data

# What do we do next???

- Establish year-round outdoor water use restrictions – controversial
- Construct two new wells-DNR SDWF loan
- Treat contaminated city well removing TCE
- Conduct brainstorming session with Wellhead Protection Commission
- Talk to industries about reducing their water use to help out the city

# What do we do next???

- Utilize DNR Priority Watershed Program
  - 70% Grant Program
- Hire crop consultant – work with farmers
- Modify how and when fertilizer is applied
- Perform nutrient management on ag. land within 1-5 year recharge area – customize fertilizing
  - \*\*Take as much credit for existing nitrogen in soil
- Use irrigation scheduling
- Priority Watershed Program “dries up”
- City continues to fund initiatives

# What do we do next???

- Other ideas.....
- Replace nearby old elevated fuel tanks
- Haul manure out of recharge area-\$10/load
- Keep as much nitrogen fertilizer off land but treat farmers as business owners !!
- Pay farmers to farm non-nitrogen demanding crops (i.e...soybeans) \$25/acre – “cropping agreement”
- Annual high residential water user audits – free retrofit of low flow devices

# Where are we at now??

- 2011 – Pumping 2.2 mgd average  
(33% reduction)
- Waupaca Foundry reduced water use by over 40% by reusing cooling water
- Less reliant on township wells by 50%
- Nitrate levels remain low and groundwater elevations remain high
- Year round outdoor water use restrictions enforced



# What may be in the future???

- Right of first refusal agreements
- City purchase adjacent ag. land:
  - Plant forest, rent land, obtain grants to set aside land, lease land, or resell land
- Obtain land use easements restricting high demanding nitrogen crops
- Other options?