Groundwater Quality
Monitoring In Minnesota

Constance Holth
MDA – Monitoring Unit
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Today’s Presentation

• Statutory requirements
• Overall monitoring goals and objectives
• Historical and current monitoring
• Program design
• How to Obtain Results
• Questions?
Why Does MDA Monitor Water Quality?
Monitoring & the Law

- **Pesticide Control Law**
  - MDA responsible for determining impact on environment and development of a Pesticide Management Plan

- **Groundwater Protection Act**
  - Determine common detection
  - Develop, promote and evaluate BMPs
  - Consider regulation if ineffective
Monitoring Program Goal

• To provide information on the impacts of the routine use of pesticides on the quality of Minnesota’s water resources.
Monitoring Program Objectives

- Measure occurrence and concentration of pesticides.
- Evaluate land use, pesticide use, and hydrologic characteristics.
- Provide information on effectiveness of management practices.
- Share the information.
MDA Pilot Project

• State-wide groundwater monitoring
• Approximately 10 yrs. of data
• Compounds analyzed for:
  – Atrazine plus degradates
  – Alachlor
  – Cyanazine
  – Metolachlor
  – Metribuzin
  – Acetochlor
PCA/DNR High and Highest Pollution Sensitivity Map

Highsusceponly.shp
County.shp
Central Sand Plains
Typical Monitoring Site Installation

- Protective casing
- Neat cement grout
- Bentonite grout
- Gravel pack
- Water table
- 1.6’ overlap
- 4’-2” dia. #10 PVC Well screen
- 2” dia. PVC Pipe
- SAND
- Well Nest
Monitoring Groundwater in Southeast Minnesota’s Karst

- New monitoring wells are expensive
- Sampling springs is the most appropriate option
- 2009 began sampling private drinking water wells

Sinkholes, disappearing streams, caves, and springs
Pesticide Monitoring Regions

REGION 1 Northwest
REGION 2 North Central
REGION 3 Northeast
REGION 4 Central Sands
REGION 5 East Central
REGION 6 West Central
REGION 7 Southwest
REGION 8 South Central
REGION 9 Southeast
REGION 10 Metro
Groundwater Monitoring Sites
2010 Groundwater Work Plan

- Sampling of monitoring wells in PMRs 1, 4, 5, 6, 7 and 8
  - PMR 4 (85 sites sampled once a year) in May and November
  - Others (45 sites sampled twice a year) in April and October

- Sampling of 12 springs and 15 domestic drinking wells in PMR 9 (southeast karst)
  - 3 springs quarterly
  - 9 springs four times with oversampling in spring
  - 15 wells once a year

- Sample 20 urban wells in partnership with MPCA (PMRs 4, 9 and 10)
  - August and September
2010 Groundwater Work Plan

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What Do We Look For?

- Pesticide Use & Patterns of Use
- Environmental Fate and Transport Properties
- Analytical Method/ Laboratory Analysis
- Previous Pesticide Detections
- Costs
Expanded Lab Capacity and New Methods

- Previous to 2010, three types of methods
  - Base Neutral Pesticides
  - Chloroacetanlvide Degradates
  - Acid Herbicides
- Limited sample numbers
- Funding in 2008 – LCCMR
- Funding in 2009/10 – Clean Water Fund
Expanded Lab Capacity and New Methods

• Approximately 100 analytes
• 1000 samples in 2009, 1300 samples in 2010, anticipating 1600 samples in 2011
• GC/MS – contains the analytes from the Base Neutral scan in the past, along with new analytes.
• LC-MS/MS – contains the analytes from both the Degs and the Acids, along with new analytes.
Groundwater monitoring results and Where to find them?
2009 Water Quality Monitoring Report

January – December 2009

Published May 2010

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Environmental Data Access

The MPCA’s Environmental Data Access (EDA) system allows users to view and download environmental data that is collected and stored by the agency and its partner organizations. Users currently have access to:

- Surface water quality data
- Air quality data
- Ground water data

Background on EDA System

Easily and readily accessible monitoring data helps Minnesotans play an active role in protecting and improving their environment. Although the MPCA and other organizations collect large quantities of environmental data, much of it has been difficult to access in the past.

The Minnesota Legislature created the EDA initiative in 2001 to address those deficiencies in the availability of surface water quality data from MPCA and others. In 2003, EDA went online providing access to water quality data through a map-based system.

The final phase of the EDA project [access to ground water data](http://www.pca.state.mn.us/data/eda/) was completed in 2008.

Comments, Feedback and Questions

Additional Information

- [Background on the EDA system](#)
- [Fact sheet about EDA](#)
- [Comments and questions](#)
- [Related Links](#)
- [Disclaimer](#)
QUESTIONS?

http://www.mda.state.mn.us/monitoring

constance.holth@state.mn.us

or

(320)223-6600