Michigan Department of Agriculture & Rural Development

Environmental Stewardship Division

MAEAP WATER MONITORING – FY15

Coordinator: Robert Pigg, 517-284-5611, piggr@michigan.gov

Legal Authority: Natural Resources and Environmental Protection Act, Public Act 451 of 1994, Part 87 (Groundwater and Freshwater Protection), as amended

Description of the Program:

The Michigan Department of Agriculture and Rural Development's (MDARD) Water Monitoring Program is the only program in Michigan routinely testing water quality in privately-owned (non-community) water wells. Samples are analyzed for pesticides, volatile organic compounds, and nitrate contamination. The program is funded in part with U.S. Environmental Protection Agency dollars. Water quality sampling and screening is coordinated with Michigan Agriculture Environmental Assurance Program technicians, employed through local conservation districts throughout the state. Well owners with results indicating a water quality problem are provided with information on risks and steps to take to verify water quality safety. If a groundwater contamination problem is identified, the program works with local landowners to determine the extent and severity of the problem. In the unlikely event a private water well is confirmed with pesticide levels above public drinking water standards, the program can provide financial assistance toward alternate water supplies. This is very unusual - the program has replaced 17 wells out of 4,538 sites sampled since 1989.

Why It Matters:

- Pesticide contamination of groundwater has been detected at 100 of 4,538 sites sampled by the program in Michigan, or 2.2 percent of the sites sampled. Many of these sites are related to each other, as sites sampled around a contaminated well are also more likely to be contaminated. A well chosen at random would be less likely to have pesticide contamination. However, these contaminated wells demonstrate a need to improve pesticide application and management practices.
- Elevated nitrate levels, five parts per million or higher nitrate as N, have been identified at 18.5 percent of private sites tested for nitrate, while 9.2 percent of private sites tested contain nitrate above public drinking water standards. This can pose a risk to infants and pregnant women who drink that water. Again, this does not represent the state as a whole, due to the clustering of results and the nature of the MDARD studies, but indicates nitrate contamination is a serious and widespread problem.

Key Stakeholders

- Domestic well owners and users
- Pesticide and nitrogen fertilizer users
- Pesticide registrants
- Local health departments
- State and federal partner agencies

Key Statistics

- Over 1 million domestic wells in Michigan
- 18.5% of tested sites with elevated nitrate
- 9.2% unsafe for pregnant women or infants
- 2.2% of MDARD tested sites show pesticides
- 31 MDARD tested sites with pesticides above drinking water standards

FY15 Accomplishments:

- Began the first year of a privately funded multi-year research study evaluating the impact of the newly-registered pesticide, isoxaflutole.
- Improved turnaround of results to well owners.

Measuring the Monitoring Program:

Metric	2010	2011	2012	2013	2014	2015
MDEQ or MDARD Analytical Lab Analysis						
Wells Sampled	101	41	153	72	99	125
Pesticide Detections	6	0	2	1	2	1
Pesticide > Drinking Water Standards	0	0	0	0	0	0
Nitrate > Drinking Water Standards[1]	-na-	0	2	4	9	8
Screening with Test Strips						
Water Screenings	1,451	432	747	670	575	707
Nitrate Elevated, at 5 ppm or higher, below 10 ppm	90	33	63	51	44	53
Nitrate Above Drinking Water Standard (10 ppm or higher)	36	33	74	54	58	46

[1]Program switched from MDARD Geagley Lab to Michigan Department of Environmental Quality Drinking Water Lab in 2011. MDARD Lab did not test for nitrate using lab methods.

Dashboards and Scorecards:

- The Water Monitoring Program does not currently have an entry on the departmental scorecard. Staff is working with MDARD's Director of Strategy and Business Performance to create measures towards this end.

FY16 Program Goals:

- Update and move the water monitoring database into a modern desktop system, such as Access.
- Conduct at least one online and one in-person training in well monitoring procedures.