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Coloma Township monitoring station part of a network that keeps west Michigan in EPA compliance

By DAVID WARFIELD

COLOMA — Working around the clock every day of the year, someone is watching out for air pollution in Berrien County.

OK, that someone is actually a machine. It's an air quality monitor in Coloma Township run by the Michigan Department of Environmental Quality, one of 39 in the state.

The U.S. Environmental Protection Agency mandated the practice in 1970.

Data from the monitors is processed and submitted into a national database operated by the consulting firm Air Quality Sciences. The AQS database is available to anyone researching air pollution. It is from the AQS database that the EPA draws its data.

Michigan's 39 stations measure things like nitrous oxides, carbon and sulfur dioxides, carbon monoxides, airborne metals, particulate matters and volatile organic compounds. Some of the stations, including the Coloma station, measure meteorological conditions such as temperature, wind speed and wind direction.

What does it mean?

It's self-evident why we want the monitors to reflect clean air, but there is more to the picture.

If the monitors show air pollution exceeding the EPA's minimum levels, the EPA designates the areas around the monitors as "nonattainment." The surrounding communities must find ways to cut pollution or face financially unpleasant penalties: bans on the construction of power plants and factories, expensive automotive emissions testing and more.

Through several EPA calibrations of air quality standards and changes in requirements, and through years of litigation, Berrien County has fallen in and out of attainment.

As of June 2007 Berrien County has been classified as in attainment, but only after proving that air quality met EPA standards and that all other 1990 Clean Air Act requirements were met, by showing air quality improvement due to permanent reductions, by showing plans to meet the standard for next 10 years, by providing an emissions budget for motor vehicle exhaust, and by showing plans to put in place corrections if the standards are violated.

An eye on ozone

The Coloma air monitoring station is among seven near Michigan's west coast that measures ozone. The Coloma station is near the Paw Paw Lake Area Wastewater Treatment Plant along Defield Road.

Dan Ling, a DEQ field operations supervisor, said ozone is a “very reactive” oxygen molecule that contributes to smog. It can be harmful to human lungs at high concentrations and dangerous for small children, the elderly and people with respiratory problems such as asthma.

Ozone pollution is a big concern for areas along Lake Michigan, Ling said – especially Southwest Michigan because it sits downwind of the Milwaukee-Chicago-Gary industrial corridor, where emissions of hydrocarbons and nitrogen oxides react with the sunlight reflected from the lake.

Ling said Lake Michigan’s conditions make it an “ozone factory.” First there are no trees to provide a “scrubber” effect and capture the ozone from the air. Secondly, the heat from the sunlight reflecting off the water “cooks” the ozone, making it more reactive, Ling said.

But Southwest Michigan now has cleaner air than at most times since the EPA began measurements. In 1978, for example, the whole lower third of the state from Muskegon to Port Huron and was in nonattainment for ozone.

Conditions have improved in recent years. In the early 1990s Michigan, Indiana, Illinois and Wisconsin formed the Lake Michigan Air Directors Consortium (LADCO), to study how ozone was formed and transported and to find out what it would take to reach attainment throughout the region.

The consortium developed models to better pinpoint the ozone sources. It took measurements from ferries crossing the lake, airplanes and air monitors on the shoreline. Some of Michigan’s 39 air monitors went in during that effort.

“We worked together as a group to bring down the levels at the monitors,” said DEQ Air Quality Specialist Mary Maupin. “They (Wisconsin, Illinois and Indiana) have done a lot.”

LADCO has since expanded the scope of its studies to reducing particulate matter and making “haze” reduction plans for areas like the Seney National Wildlife Refuge in eastern Upper Michigan and Isle Royale in Lake Superior. Ohio has also joined the consortium.

Every one of the state’s seven monitoring stations near Lake Michigan measures ozone: Coloma, Holland, Muskegon, Scottville, Manistee, Peshawbestown and Seney.

Photo Caption:

Much rests on this modest white box and trailer parked at the Paw Paw Wastewater Treatment Plant along Defield Road in Coloma Township. The box monitors particulate matter in the air. The trailer contains office equipment and equipment to monitor ozone and air pollutants. Measurements help determine whether nearby communities must curtail air-polluting activities.