

## 2-Year Water Monitoring Project Documents Liquid Manure Pollution Through Field Drainage Tiles

A 2-year water monitoring project at sites near Confined Animal Feeding Operations in Hillsdale and Lenawee Counties documented serious water quality concerns in several stream stretches where liquid manure is applied. In the River Raisin Watershed, Bear Creek and its tributaries Henning Drain and Rice Lake Drain, (Hudson, Dover Twp, Lenawee Co) showed the most frequent contamination. In the Bean/Tiffin Watershed, where the largest CAFOs are located, at least three stream stretches tested regularly showed serious contamination – Lime Creek Inlets to Lime Lake (Wright Twp, Hillsdale Co) and Medina Drain and Durfee Creek (Medina Twp, Lenawee Co).

During 2001-2003, the monitoring project collected a total of 430 water samples at 79 sites. Conducted by Environmentally Concerned Citizens of South Central Michigan (ECCSCM) and funded by a Community Action grant from Sierra Club, the project sampled surface water for E. coli bacteria and Dissolved Oxygen. Dissolved Oxygen was tested with a digital meter, and bacteria samples were tested at a DEQ-certified lab.

The purpose of the ECCSCM monitoring project was to determine the impact to water quality of newly-constructed CAFOs, including 10 dairies, with 700-3,400 cows confined at each production facility. The Monitoring Project focused on specific sites of concern, given the recent change in agricultural land use. Whenever possible, sites were selected that drained only fields with manure-application, or as close as possible downstream, so that bacteria sources were limited. The ECCSCM Project was not intended to study water quality generally, or to be a comprehensive monitoring of all CAFOs.

### Liquid Manure and Tile Discharges

The ECCSCM project was important in bringing to public attention the serious problem of liquid manure discharges through field drainage tiles to streams. Almost all illegal manure discharges confirmed by the Department of Environmental Quality, more than 50 violations during the last 2 years, occurred after application of liquid manure to fields, with the contaminated liquid draining through tiles to streams.

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at many locations, 10 of 12 ECCSCM water samples taken December 29, 2003, tested at bacteria levels Too Numerous To Count (TNTC). Four of those sites were field tile outlets flowing to Lime Lake Inlet from fields where the largest dairy CAFO had applied liquid manure. Lime Lake Inlet sites tested TNTC eight times during the project, and exceeded the E. coli standard of 1,000/100 ml more than 30 times.

Rain aggravated discharges through drainage tiles. Samples taken after 1/2" of rain on July 23, 2002 all violated water standards, including 5 samples TNTC. On June 12, 2003, samples taken in rain also all had excessive bacterial contamination.

However, because CAFO waste is liquefied, it can reach field tiles without rainfall. ECCSCM monitoring found contaminated liquid discharging through tiles even in dry weather.

Total data from the ECCSCM project was submitted to the Michigan Department of Environmental Quality. DEQ frequently responded to test results showing extreme contamination. With their own confirming data, the DEQ cited several CAFOs for illegal manure discharges, including multiple violations in April 2002, March 2003, and the holiday period, December 2003.

Coordinated by Janet Kauffman and Kathy Melmoth, R.N., the ECCSCM Water Monitoring Project documented water quality violations during every month of the year, including winter, when underground tiles sometimes still flowed, or liquid manure melted off the surface of fields and entered catch-basins to drains.

"An important question that remains and needs study," Kauffman said,

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## ECCSCM condemns vandalism, harassment of volunteers monitoring animal factories

A recent grisly incident has prompted Environmentally Concerned Citizens of South Central Michigan (ECCSCM) to denounce all intimidation tactics against citizen volunteers who monitor air and water near Confined Animal Feeding Operations in Hillsdale and Lenawee Counties. Four dead and bloodied animals were placed on the property of an ECCSCM volunteer who conducts routine monitoring of CAFOs, documenting the spraying of liquid manure, contamination of waterways, and potential air quality violations. Dead animals were placed in the family's mailboxes, another splayed on the family's car, and another set at their doorstep.

"The trespass and vandalism will not deter ECCSCM from its ongoing monitoring programs," said John Klein, President of the Hudson area organization. "Our philosophy is to observe, record, and inform, while our continued goal is to help stop this ongoing environmental disaster we are experiencing from the CAFO discharges."

ECCSCM has one of Michigan's most effective volunteer water monitoring programs, documenting persistent pollution from animal factories. In the last four years, their monitoring programs have helped state, local, and federal officials identify the serious issue of liquid manure discharges through field drainage tiles. Discharges of manure and other agricultural wastes into Bean Creek Watershed and the River Raisin Watershed led to more than 60 citations from the Michigan Department of Environmental Quality against eleven CAFOs for violations of the Clean Water Act and Michigan's water protection laws.

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"is the consequence of chronic manure pollution, also called nutrient pollution. We need to protect the living streams and try to resuscitate the dead ones." Nutrient pollution increases algal growth and lowers Dissolved Oxygen. With very low DO levels, below 3 mg/L, many aquatic species and fish die. Several streams in the ECCSCM project tested at persistently low DO levels. Throughout the summer of 2003, a tributary of Durfee Creek in Medina Township did not once register above 1 mg/L – dead-zone level.

One conclusion from the project is that, on tile-drained fields in particular, liquefied manure is a major pollutant. Nearly 100% of manure-application fields in Michigan are tile-drained, according to a study prepared for the Michigan Agriculture Environmental Assurance program, February 2004

ECCSCM members have met with Michigan State University researchers as well as DEQ and the Michigan Department of Agriculture, to discuss alternatives to the liquid/lagoon system of waste handling at CAFOs. "The liquid/lagoon system is basically a pump and spray system," said Melmoth. "It's 40 years behind the times, and uses clean groundwater that goes back on fields as contaminated liquid. That's not a healthy cycle."

To protect rural watersheds and drinking water sources, ECCSCM has called for an immediate prohibition of application of liquid manure to frozen ground and a phase-out of the application of liquid manure to tiled fields. ECCSCM has also called for a moratorium on new CAFOs until drier and non-polluting waste systems are in place.

Since the end of the 2-year project, ECCSCM has continued its volunteer water monitoring with routine observations of critical sites and spot water samples. ECCSCM is also developing an air monitoring project, testing for hydrogen sulfide, one of the major emissions from CAFO lagoons and liquid waste application.

**For the full Final Report on the ECCSCM Monitoring Project and Total Data in Excel, sortable by date, location, and other variables, see [www.nocafos.org/finalreport.htm](http://www.nocafos.org/finalreport.htm)**

## Who Publishes This Newsletter?

This newsletter is published by Environmentally Concerned Citizens of South Central Michigan (ECCSCM), a small grassroots group originating in the Lenawee and Hillsdale County areas. ECCSCM is made up of farmers, small business owners, professionals, retirees, lake front owners, and your neighbors.

ECCSCM seeks to (a) understand community environmental and health issues due to large animal and poultry operations, (b) determine if the laws and government agencies are addressing these issues, and (c) seek appropriate action so that all of us can enjoy our rural way of life and health.

Please visit our web sites at [www.ECCSCM.org](http://www.ECCSCM.org) and [www.nocafos.org](http://www.nocafos.org) for more information. Please consider joining us at ECCSCM.

**KEEP OUR AIR & WATER CLEAN,  
FOR US & FUTURE GENERATIONS!**

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In the last month alone, with spring thaws, ECCSCM monitoring identified numerous sites where liquid manure applied to frozen ground was running off or draining through tiles to streams. The DEQ investigated and cited several CAFOs for multiple violations.

ECCSCM has recently begun a project of air monitoring for hydrogen sulfide, a major air emission of animal factories. Details on ECCSCM's on-going monitoring programs can be found on the group's website, [www.nocafos.org](http://www.nocafos.org).

The trespass and vandalism are not the first incidents of harassment of ECCSCM volunteers. In the last two years, a volunteer's car has been blocked on the road by two large manure-hauling tanker trucks, volunteers have been followed and verbally harassed, frivolous police complaints of reckless driving and trespass have been filed against volunteers. "Strong-arm tactics by polluters won't stop volunteer monitoring of animal factories," said Janet Kauffman, ECCSCM volunteer. "Not here, not in Ohio, not Indiana, not anyplace neighbors care about kids wading in streams or fishing in lakes."

## *ECCSCM Meetings 2nd & 4th Wednesday 7:30 pm - Uptown Kafe, Hudson, MI*

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