

Published June 3, 2007

Biofuel plants generate new air, water, soil problems for Iowa

Can ethanol and biodiesel production rise without bigtime damage to resources?

By PERRY BEEMAN
REGISTER STAFF WRITER

Copyright 2007, des moines register and tribune company

Iowa's ramped-up ethanol and biodiesel fuel production led to 394 instances over the past six years in which the plants fouled the air, water or land or violated regulations meant to protect the health of Iowans and their environment.

In addition, many biologists consider the industry's most prevalent environmental issue the water pollution and soil erosion that will accompany the increased corn production needed to meet ethanol's soaring demand.

The buzz about biofuels centers on a huge environmental perk. During its production and use in vehicles, corn-based ethanol burns cleaner than gasoline, emitting 20 percent less of the heat-trapping gases that contribute to global warming. Ethanol made from corncobs and switchgrass would cut the load by 90 percent.

But along with the benefits, the biofuel boom has brought environmental problems - and the total impact isn't yet known - to Iowa, a Des Moines Sunday Register analysis shows.

It is the breadth of the offenses, rather than the number, that surprises Barbara Lynch, who supervises the state's environmental inspectors.

"It's very significant," Lynch said. "We anticipated some issues, but we were disappointed there were so many issues."

"One of the things about ethanol and the biofuels is they impact every arena: air, water, drinking water, construction wastes. It seems like they cut across every program we have."

Regulators and scientists say that as biofuel production grows, more focus is needed on the impact on natural resources.

"The implications of this industry in Iowa are huge," said Rick Cruse, director of the Iowa Water Center at Iowa State University in Ames. "If it isn't done right, it could be devastating to some resources."

The risks to Iowan's health from the plants' air and water pollution can be fleeting.

"If there is a health concern, it would normally be a transient concern," said Rita Messing, a toxicologist with the Minnesota Department of Health. "Once the problem at a plant is fixed, the risk is gone."

Gene Parkin, who directs the University of Iowa Center for the Health Effects of Environmental Contamination, summarized the health risks of corn-based ethanol production as "moderate, but reversible," while gasoline's are "serious and irreversible." Making ethanol from switchgrass would lower the risks to "minor and



DOUG WELLS/THE REGISTER

Department of Natural Resources environmental specialist Glenn Carper, left, conducts an air-quality inspection at the Cargill plant in Iowa Falls, which has a biodiesel facility. Accompanying him during the inspection is plant Superintendent Dan Schoenfelder. As biofuels take off, the state tries to keep up with monitoring the industry.

FUELING IOWA'S FUTURE

How biofuels pollute. Ethanol production pollutes in unexpected ways, and experts say it's hard to know what the industry's full environmental impact will be.

interactive map:

Database of Iowa's biofuels plants



stories:

- Biofuel plants generate new air, water, soil problems for Iowa
- INTERACTIVE: Biofuels and the environment
- Water use: Biofuel plants' thirst creates water worries
- Erosion: Drive to increase corn acres could damage soil
- Air: Plants emit higher levels of toxics than expected
- Water quality: Wastewater often pollutes rivers
- Possible solutions: Building a 'greener' industry
- The upside: Ethanol may not be a cure-all, but it helps
- From the reporter: A greener fuel,

reversible" in his view.

Widespread violations found

The Register's analysis of state inspections shows the range of challenges the industry faces. The numbers listed here count each offense only once. Because federal regulations consider each day that a violation occurs as a separate offense, the actual number of violations could have been higher.

The biggest problem at the plants is meeting sewage pollution limits and preventing wastes from spilling into waterways. There were 276 violations in that category, involving 11 plants, one-third of all Iowa's plants in operation during the analysis and covered in the documents. Much of the sewage trouble came from too much iron in water withdrawn from local aquifers. Iron discharges were 30 times the allowable limit in one case. Some plants, like Lincolnway Energy in Nevada, installed iron filters to correct the problem.

- The state recorded 27 instances at six plants in which emissions exceeded limits for various hazardous air pollutants. The plants had four other air-related offenses.

- In 21 instances at eight locations, the plants failed to properly test the plant to see if it met environmental guidelines.

- Three violations at three locations were for open burning or illegal dumping.

- One biodiesel plant, Cargill in Iowa Falls, was cited for a fish kill caused by the improper spreading of liquid wastes. Another plant, Siouxland Energy & Livestock in Sioux Center, was cited for releasing contaminated wastewater in an attempt to dilute a manure spill from a neighboring cattle operation.

- In 17 cases at 10 plants, the facilities either didn't apply for a permit before building or operating regulated equipment; or failed to build the plant as outlined in the permit; or failed to apply for the stricter permits needed for larger emitters of pollution. One company, Quad County Corn Processors in Galva, received two \$10,000 fines in 2005 for failing to get the more elaborate permits required for larger emitters, which often call for additional control equipment.

Lynch said the early trouble with permits was a serious matter.

"They didn't seem to realize or take seriously the need to get permits," Lynch said. "People say, 'So they didn't get a permit, big deal.' It's not about a piece of paper, it's about managing environmental impacts."

The Register's analysis shows that of the 34 ethanol and biodiesel plants in operation in Iowa over the past six years, 22 have been cited by the Iowa Department of Natural Resources for violations. There are now 38 biodiesel and ethanol plants in operation.

Inspectors at the DNR, who are largely responsible for monitoring biofuels plants' compliance with state and federal laws, say plant officials are getting better at following environmental laws and obtaining the proper permits.

Industry leaders say plants have improved their environmental controls.

"If you look at the effect on the environment overall, we have a very good record," said Monte Shaw, executive director of the Iowa Renewable Fuels Association. "We take it seriously. ... We want to be friendly to the environment."

However, the Register's analysis shows 13 of the 21 officers and board members of the Iowa Renewable Fuels Association, whose job is to promote the industry, are associated with plants that have been cited for environmental offenses by the Iowa Department of Natural Resources.

Shaw said many of those offenses involved paperwork violations. He added that there was confusion on the part of plant managers, and even state environmental inspectors, as the industry matured.

The industry has grown to 28 ethanol plants, producing 1.9 billion gallons, with 19 plants under construction or expansion that will mean another 1.4 billion gallons a year. The 10 biodiesel refineries produce 165 million gallons a year; four more, with a combined capacity of 150 million gallons, are on the way.

Shaw agrees that making biofuels has an environmental impact and the industry has been learning from its mistakes.

With the industry booming, regulators and scientists agree it's hard to project the full impact of the state's stepped-up biofuels production.

but not pristine

learn more:

- [Fueling Our Future main page](#)
- [GRAPHIC: Why stover is vital for Iowa's soil](#)
- [GRAPHIC: How biodiesel is made](#)
- [GRAPHIC: How stover becomes ethanol](#)
- [GRAPHICS: Current technology no match for Bush goal](#)
- [INTERACTIVE: Biofuels in other states](#)
- [Glossary of biofuels terms](#)

For example:

- Neither the state nor federal government measures how much carbon dioxide the biofuel plants emit, although a new Iowa law passed this year will establish a panel that is supposed to find a way to collect carbon emissions data from industries, including biofuels plants, for the first time.

- The state has yet to determine the full extent of water use by the industry, largely because of a lack of money for a full range of sampling and monitors.

- One of Iowa's greatest environmental challenges - damage to soil and water from more corn production - will increase if the additional acres needed to meet ethanol demand don't have pollution controls such as grassy buffer strips along waterways, scientists and state regulators say.

- Finally, no one has compiled a comprehensive study of the biofuel plants' water pollution, although the state's list of seriously polluted waterways, as defined by the federal Clean Water Act, will increase to 274 river stretches and lakes this year, up from 225 in 2004. Silt and farm chemicals are two of the main reasons.

Reporter Perry Beeman can be reached at (515) 284-8538 or pbeeman@dmreg.com

● [Click here to go back to article](#)

Copyright © 2005, The Des Moines Register.

Use of this site signifies your agreement to the Terms of Service (updated 1/3/2003).