ithacajournal.com

May 15, 2008

DEC orders Cornell to submit more analyses for Lake Source Cooling permit

By Krisy Gashler
Journal Staff

ITHACA — Cornell University will be required to include a controversial analysis of the impact of their lake source cooling project in order to renew their discharge permit with the state Department of Environmental Conservation.

DEC spokeswoman Lori O'Connell said Wednesday that the DEC has decided to require Cornell to evaluate site 7, which sits south of and closest to Cornell's lake source cooling discharge, against site 4, a control site at roughly the same location on the other side of the lake.

Pat McNally, environmental program manager at Cornell, says the analysis may be statistically “invalid.”

Dave Matthews, senior research scientist for the Upstate Freshwater Institute, an independent not-for-profit hired by Cornell as a consultant, says the decision amounts to “changing the rules.”

Walter Hang, environmental activist and president of Ithaca-based Toxics Targeting, called the decision “unbelievably great news.”

Cornell will receive written notification of the DEC's decision within a week, O'Connell said.

As part of their original permit to discharge into Cayuga Lake, Cornell was required to complete a Before-After-Control-Impact analysis to determine whether lake source cooling was impacting water quality in southern Cayuga Lake.

Lake source cooling works by pulling frigid water from the bottom of Cayuga Lake, pumping it into a heat exchanger where it cools other water that is sent by pipes to campus for use in air conditioning. The untreated lake water is returned to the shallow southern end of Cayuga Lake.

Phosphorus, in the form of dead aquatic life and other vegetation, naturally sinks to the bottom of the lake. When Cornell pulls water out of the bottom of the lake, 250 feet deep, it pulls this phosphorus with it. The water is returned to the shallow southern edge of the lake, about 10 feet deep.

When exposed to sunlight, the phosphorus can be taken up by weeds and algae and contribute to algal blooms that clog the southern end of the lake.

Cornell's original BACI analysis included comparisons of various locations, including site 1, which sits north of the lake source cooling discharge, and the control site. They will now be required to run comparisons of the monitoring locations on both sides of their discharge.

Cornell contends that standard flow in Cayuga Lake is counter-clockwise, meaning water along the eastern shore where they discharge moves north.

But high flow from tributaries and strong winds can sometimes reverse this flow, pushing their discharge south.

O'Connell said the first reason the DEC decided to require the additional analysis is because sites 7 and 4 were intended to bracket the lake source cooling discharge.

Another reason is that a comparison of sites 7 and 4 have “exhibited some adverse water quality impacts that were associated with the discharge,” she said.

Matthews, who holds a doctorate in water resources engineering, said that adding the analysis now is statistically questionable and sets Cornell up for failure.

“Cornell and DEC had agreed to a specific set of comparisons and subsequently all the comparisons were run. And (now) they're requesting that Cornell include the ones that could be interpreted negatively but not to include the ones that could be interpreted positively,” he said.

In a letter to the DEC last fall, shortly after the agency originally proposed that 7 and 4 should be evaluated, the Upstate Freshwater Institute argued strongly against adding the pairing.

Matthews said the argument was not so much that a specific pairing shouldn't be added, but that “What we argued against was really changing the rules.”

“When you do statistical comparison, in order for it to be valid, you have to decide upon the comparisons you're going to make before you look at the data. Otherwise, it's really a fishing expedition,” he said. “I think what we would object to is not any particular comparison, but just more to the notion that you make the rules, you agree to the rules, and then when the results aren't to your liking, you change the rules. I think most folks would agree with that.”

Cornell began collecting data from lake source cooling in 1998, and Cornell and the DEC agreed to the original BACI analysis in 2004.

McNally said he would have to see specifics of the DEC's order before being able to determine “if we agree with it.”

Cornell will follow the DEC's orders, McNally said, even if they believe the orders are scientifically invalid.

“They may ask us to do a particular analysis and we may do it, but it doesn't mean that we think it has validity,” he said.

Site 7 could be complicated by the presence of other phosphorus-producing discharges, McNally said, including both the Cayuga Heights and Ithaca Area Wastewater Treatment Plants and a large stormwater pipe that carries rainfall runoff from Cayuga Heights and Route 13.

During the summer, total phosphorus at site 7 is found at 20-25 micrograms per liter, McNally said.

“Our discharge never exceeds somewhere in the neighborhood of 15,” he said.

Tributaries are the largest contributors of phosphorus to the lake, followed by the wastewater treatment plants. Lake source cooling contributes roughly 10 percent of the entire phosphorus load in the lake, according to Cornell's 2006 lake source cooling monitoring report.

“That's taken into account,” the DEC's O'Connell said. “We know that they're not the only contributors.”

The fact that Cornell's annual loading, the amount of water they pull from the bottom and discharge at the top, has been steadily increasing, while phosphorus discharge from other point sources, notably the Ithaca wastewater treatment plant, has been decreasing, also warrants closer scrutiny, O'Connell said.

Hang applauded the “DEC's decision to stand firm on its requirement to require a rigorous assessment of lake source cooling's impact on Cayuga lake.”

“Many local advocates and I have fought for literally ten years to get an honest assessment of lake source cooling's impact on the lake,” he said.

When the lake source cooling permit was initially granted 10 years ago, after rules requiring much stricter regulation of new discharges had been passed by state and federal agencies, it was a “test of how state and federal authorities were going to deal with these impaired water bodies that really hadn't been cleaned up, despite decades of effort,” Hang said.

The original permit fight garnered national attention.

“I think it bodes enormously well for the future cleanup of southern Cayuga Lake but I think it could bode equally well for safeguarding cleanup of water bodies around the state,” he said.
