

[charlotte.com](#) - [That's Racin'](#) - [Yellow Pages](#) - [Just Go](#) - [Travel](#) - [Community](#)
[Local Guide](#) - [Weather](#) - [Health](#) - [Careers](#) - [Real Estate](#) - [cars.com](#) - [Classifieds](#)

LOCAL NEWS

[Front Page](#)
[Local News](#)
[Schools](#)
[Mecklenburg](#)
[Gaston](#)
[York](#)
[Cabarrus](#)
[Catawba](#)
[Iredell](#)
[Union](#)
[Obituaries](#)

NEWS/OPINION

[A-section](#)
[Nation/World](#)
[Opinion](#)
[Siers cartoon](#)
[Observer Forum](#)

BUSINESS

[Business News](#)
[Business Update](#)
[Business Monday](#)
[Click](#)
[Technology](#)
[Industry news](#)
[Stock Quotes](#)
[Mortgage Rates](#)
[Motley Fool](#)
[Tax value search](#)

SPORTS

[Today's Observer](#)
[Message Boards](#)
[Duke](#)
[North Carolina](#)
[N.C. State](#)
[Wake Forest](#)
[That's Racin'](#)
[Golf courses](#)
[Panthers/NFL](#)
[Hornets/NBA](#)
[Sting/WNBA](#)
[Outdoors](#)
[Golf](#)

FEATURES

[Living](#)
[Health](#)
[Food](#)
[Family](#)
[Faith](#)
[Gardening](#)
[Home](#)
[Entertainment](#)
[Just Go](#)
[Arts](#)
[Book reviews](#)
[Travel](#)

RESOURCES

[Site index](#)
[City Guide](#)
[Contact us](#)
[Feedback](#)
[charlotte.com](#)

**The Charlotte Observer**

Posted at 9:52 p.m. EDT Wednesday, October 18, 2000

[E-mail this story to a friend](#)

Concerns raised about nuclear plants' design

NRC: Duke's use of plutonium won't boost risk

By **BRUCE HENDERSON**

The design of Duke Power's two Charlotte-area nuclear plants may heighten the risks of using surplus weapons material to fuel them, an anti-nuclear proliferation group says.

Federal authorities say structures designed to contain radioactivity during a severe but unlikely reactor accident at Duke's McGuire and Catawba plants are substantially more likely to fail than those at most nuclear plants.

Even so, the Nuclear Regulatory Commission says Duke's plan to use fuel that contains plutonium doesn't increase the risk of an accident. The agency, which must approve the plan, says it hasn't analyzed the consequences of an accident involving the new fuel.

Duke and the NRC say the plants are safe. The utility hopes to use government plutonium, a radioactive element that is highly toxic in tiny amounts, to help fuel McGuire on Lake Norman and Catawba on Lake Wylie, beginning in 2007. It would be the first time that bomb material fuels a U.S. power plant.

The two plants are among 10 nationwide that built smaller, cheaper structures to contain radiation that could escape during a reactor accident. The structures rely on ice-filled beds that would condense radioactive steam into water.

Most other nuclear plants use thick shells of reinforced concrete that are designed to be strong enough to withstand the heat and pressure of a severe accident.

A study for the NRC, published in April, said such ice-condenser plants would be much more likely to fail than other containment types during some quickly developing accidents. The expected failures would come from explosions of hydrogen produced when a reactor loses cooling water and fuel begins to melt.

Ice-condenser plants are more vulnerable to such explosions because their hydrogen-control systems don't work if the plant loses all electrical power, the NRC says. The systems are designed to relieve intense pressure by burning hydrogen before it explodes. The NRC says it is addressing that vulnerability.

The Nuclear Control Institute, an advocacy group based in Washington, says the study should trigger new scrutiny of the government's plan to mix surplus plutonium with uranium, nuclear plants' conventional fuel.

"These plants were built with the reasoning that you didn't need to build strong containment because you had other systems to reduce pressure," said the group's science director, physicist Edwin Lyman. "If that's not there, that is a concern."

The group will ask the Energy Department to reopen an environmental impact study and suspend work on a facility to make the new fuel. Duke Engineering & Services, a unit of Duke Energy, is part of a consortium under contract to build the facility at the Savannah River Site near Aiken, S.C.

The April study put the probability of the ice-condenser plants failing to contain radioactive releases, under certain accident conditions, at .35 percent to 5.8 percent - "substantially more sensitive to early containment failure" than other plants but under the 10 percent rate the NRC says is acceptable.

McGuire's failure probability was 13.9 percent - highest of all the plants but close enough to the safety target, the NRC says.

"We concluded these plants do not pose any additional safety risks," said Farouk Eltawila, acting director of the NRC division that commissioned the study.

"Based on the information that we have right now, we do not believe the use of (mixed oxide or) MOX fuel is going to produce any significant accident challenge to the containment" compared to conventional fuel, Eltawila said.

Duke Power says the scenario envisioned by the failure estimates is extremely remote. It would combine an accident in which the reactor vessel ruptures, shooting bits of the molten core into the containment structure, with the loss of power from outside the plant and the failure of two backup diesel generators.

The NRC puts the likelihood of total power loss at 6 in 1 million for McGuire and 4 in 10 million for Catawba.

Duke says the NRC's higher estimates for McGuire are based on old information that doesn't reflect upgrades to its backup power system. McGuire should now be in line with the other plants, company officials said.

"Our analysis indicates that the McGuire-Catawba containments are as good as the other containments out there," said Steve Nesbit, Duke Power's MOX project manager.

Duke expects to file an application with NRC for test use of the new fuel next summer, said Duke spokeswoman Becky McSwain. An application for full-scale use of the fuel will be filed in 2003.

"The NRC is not going to let us operate an unsafe plant," McSwain said, "and we're not going to operate an unsafe plant."

Send this story to a friend
Just enter your **email address** and
the address of the recipient

From:

To:

Send

NEWS

Front page ▼ Go

FEATURES

Living ▼ Go

SERVICES

That's Racin' ▼ Go