

OFFICIALS: SHARE DAM RISK

By Eric Connor | Staff writer
econnor@greenvilleonline.com

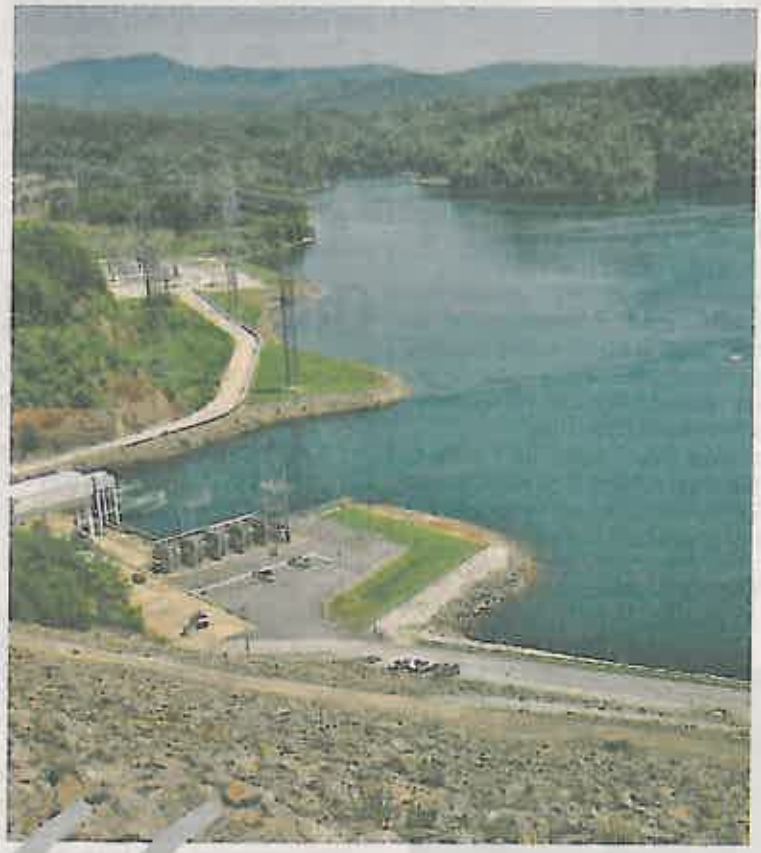
If the Lake Jocassee Dam were to violently break and send an inland tsunami of water downstream, life as we know it in the Southeast would be at stake.

The likelihood of such a nuclear catastrophe and the ability of regulators and the power company to contain it? It depends on who you ask — and the answers are, in more ways than one, shrouded in secrecy.

The government and Duke Energy insist that plans to keep Oconee running during a massive flood are "adequate" and that information held back describing the threat are in the interest of security.

Two federal regulators of the nuclear industry — whose jobs are to

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Two federal regulators say the public should be fully informed about the risks posed by a break at Lake Jocassee Dam. KEN OSBURN/STAFF

GreenvilleOnline.com

Watch a slide show of views of the Lake Jocassee Dam that explains the history and risks surrounding the Oconee Nuclear Station.

"The people who live around these plants need to be able to sleep ... knowing that the situation has been appropriately addressed."

RICHARD PERKINS, NRC risk analyst

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assess the risks nuclear power plants such as the triple-reactor Oconee Nuclear Station pose to the world — are speaking out about the threat and a heavily edited version of a report from their department they say should be released to the public in full.

Their message: The government and Duke Energy know more than they are telling the public, and the secrets they keep are less about safety and more about just how possible a disaster like the Fukushima nuclear station meltdown in Japan is just 40 miles from the beating heart of the Upstate.

A failure of the 385-foot-high Jocassee dam would be considered a fluke, but so was the meltdown in Japan, said Larry Criscione, a reliability and risk engineer in the Nuclear Regulatory Commission's Division of Risk Analysis.

"When you look at the risk numbers," Criscione told GreenvilleOnline.com, "it's pretty similar to that Fukushima accident. It's certainly within the realm of credible events. We all saw it happen."

What has been released through the Freedom of Information Act gives a glimpse into how the government and Duke have communicated over the course of decades over the threat of a dam failure.

The documents include government talking points to communicate the message with "external stakeholders" and a time-line detailing NRC concerns shared with Duke and actions taken — and not taken.

"The people who live around these plants need to be able to sleep well at night knowing that the situation has been appropriately addressed," Richard Perkins, an NRC risk analyst who authored the 2011 report calling for the regulatory agency to take a closer look at the danger of dam failure. "They need to understand the consequences that are involved."

Duke Energy spokeswoman Sandra Magee wouldn't specify what has been done to guard against dam failure, citing security concerns that she said prevent the company from divulging such information.

Duke is using a "new, redundant system" that provides an alternate means of cooling Oconee's reactors "when traditional power supply is not available," Magee said.

"Oconee and other nuclear utilities have developed diverse and flexible capabilities to cope with extreme events using a combination of installed plant equipment, supplemental portable equipment stored on site and other capabilities stored off site, she said.

Magee said final safety measures will be in accordance with the nation's overall response to Fukushima.

Redacted report

Earlier this fall, Perkins made his concerns over failure of the Jocassee dam and the threat of nuclear catastrophe public.

A few weeks later, Criscione followed with his own critique of the NRC's handling of the dam issue.

The NRC cited security concerns in blacking out several portions of the report, and the agency stands by that decision today, spokesman Scott Burnell said.

Duke Energy supports the NRC's decision to redact the report for security purposes, Magee said.

In the redacted version, Perkins wrote that engineers determined that the threat of a failure of the Jocassee dam is more likely than Duke Energy had long claimed and the nuclear ramifications far worse than the company and regulators had presumed.

Perkins wrote that "the original licensing basis for Oconee Nuclear Station did not include the impact of failure of Jocassee" and that a flood wave from a dam failure would "overtop the Keowee Dam as well as overtop the Oconee intake dike and would flood the plant," eliminating off-site and station power.

The statement is followed by blocks of redacted text.

In 2010, the NRC"s division of risk analysis was tasked with studying the potential issues involved in upstream flooding at 20 reactor sites, the accumulation of concerns over the past several years.

The March 2011 disaster in Fukushima prompted regulators and the industry to review the issue of seismic and flood events, which the NRC says will culminate in 2016.

Duke will be among the first to return with information, Burnell said.

In his September letter, Perkins wrote that redacted portions of the report were less about preserving security and more about avoiding embarrassment to the agency and Duke Energy.

In interviews with GreenvilleOnline.com, both Perkins and Criscione declined to discuss information that the NRC has redacted but spoke about their concerns that the information wasn't a security concern at all.

The NRC submitted both letters to the inspector general "to do what they feel is appropriate," Burnell told GreenvilleOnline.com.

Worst-case scenario

In his letter, Criscione lays out the worst-case effects of a dam failure.

The immediate nuclear impact likely wouldn't result in loss of life and instead would be confined to lost property, Criscione wrote.

Each reactor at Oconee produces, four times a day, the equivalent energy to that released in the Hiroshima bombing, energy that if not contained, could result in a meltdown that would strike the Southeast, Criscione wrote.

Unlike Fukushima, on the shores of the Pacific Ocean, nuclear fallout wouldn't blow out to sea but instead would follow the wind toward population centers like Knoxville, Charlotte, Columbia, Atlanta or Huntsville, he wrote.

The true measure of devastation, Criscione wrote, would be in the "intangible" loss of property, both in economic impact and lost faith in the nuclear industry.

"What will that do to home prices?" Criscione wrote. "What will it do to local economies? How will it affect people's mental health? Will textile manufacturers want to buy cotton from even minimally contaminated areas? Will cigarette companies buy tobacco from these areas? Will anyone buy their produce and grains? Their hogs and chickens?"

What are the odds?

The degree of likelihood of a dam failure isn't agreed upon by Duke, the NRC or nuclear watchdogs, except that the chances are small and the chances of a nuclear meltdown as a result even smaller.

However, one expert who once trained nuclear regulators said in interviews that the dam issue highlights a cul-

ture of secrecy that could prove to undermine public confidence in nuclear energy and lead regulators and utilities to become complacent without the watchful public eye.

"There are no pockets deep enough" to guard against every eventuality of a Jocassee dam failure, but more can be done, said David Lochbaum, director of the Nuclear Safety Project for the Union of Concerned Scientists.

The nuclear watchdog group earlier this year cited Oconee among its list of "near misses," when it was discovered that a breaker in the backup source of reactor cooling was faulty.

It was that backup source — the standby shutdown facility, which houses equipment to shut down reactors from outside the control — that was among the chief concerns mentioned in Perkins' report, which GreenvilleOnline.com reported on last year.

Water could exceed the flood-protection level of the facility, according to a 2006 document cited in the analysis.

In response to questions by GreenvilleOnline.com, Magee didn't address whether the standby facility had flood walls high enough to withstand a dam failure but said it is capable and only "one of our barriers to address flooding concerns."

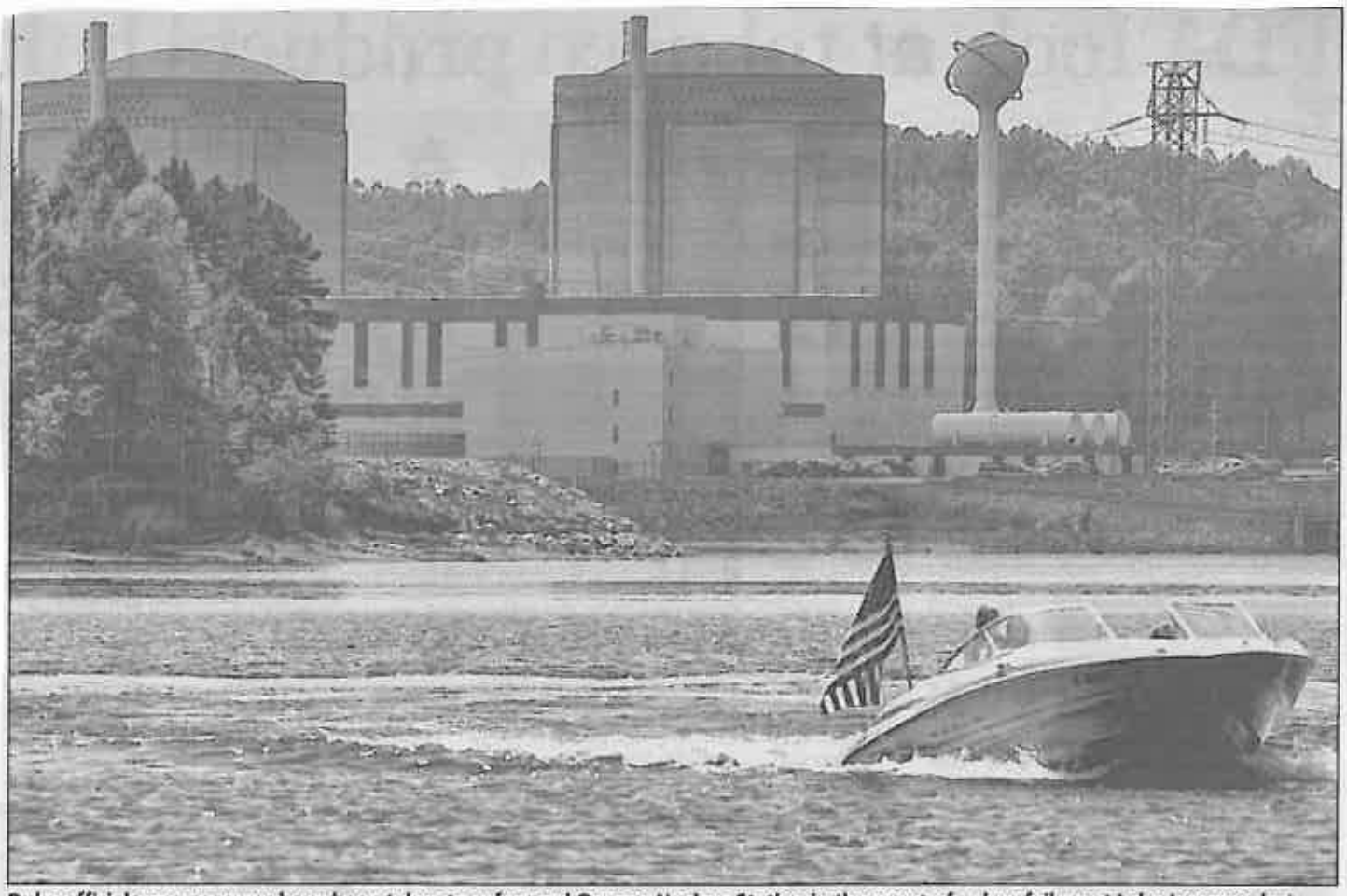
"The SSF along with other diverse equipment are able to address all extreme flooding events," Magee said.

Documents detail communication

For decades, the NRC and Duke weren't in agreement on how much of a risk a dam failure posed.

If the redacted version of Perkins' report doesn't detail to what degree regulators and the utility communicated about the issue, other publicly released documents do.

A 2008 NRC "time-line of interactions" stretches back to 1983, when the agency determined that a dam failure wasn't a "credible concern" for Oconee.



Duke officials say measures have been taken to safeguard Oconee Nuclear Station in the event of a dam failure at Lake Jocassee, but two federal regulators say there's much the public should know. /STAFF FILE

Nuclear impact of failure would be immense, they say; Duke says safeguards in place

In 1992, according to the time-line, Duke added dam failure to its safety analysis after a Federal Energy Regulatory Commission "inundation study" predicted flood levels.

By 1994, Duke told the NRC it couldn't replicate its original flood studies to reconcile with the 1992 flood study, and was cited by the NRC for submitting an inaccurate examination of external events outside Oconee, according to the timeline.

In 1998, according to the document, Duke applied for an operating license renewal and, at the time, the NRC wasn't aware of "errors in the dam failure frequency" that came to light in 2006 after the agency determined that Duke was responsible for a breach in the wall of the standby facility.

Duke appealed the NRC's citation of a "low-to-moderate" safety issue in 2006. The appeal led to an NRC review of the "random failure frequency for Jocassee dam," which found a "discrepancy" that was communicated to Duke, according to the document.

Another 2008 document details a "communications plan" the NRC issued including guides to questions the public might ask and talking points to share the message.

In that communications plan, the NRC said that its re-evaluation after the Duke appeal "discovered that the licensee had erroneously computed a random rupture frequency for the Jocassee Dam, a frequency significantly lower than what could be justified based on actual data."

The error wasn't confined to Oconee and set an industry reference point, according to the communications plan.

"Moreover, many other licensees with similar issues appear to have adopted this dam failure frequency and used it to justify screening out consideration of external flood damage at their sites," according to the plan.

In the section that lays out answers to questions the public might have, the NRC said that it believed Oconee could operate safely in the interim.

The document cited government inspection reports of the Jocassee and Keowee dams that concluded the dams were in "satisfactory condition."

The document also cited the "long-standing drought" in the area that resulted in lake levels low enough to reduce pressure on the dams.

Secrecy issue

The level of secrecy throughout the process "sounds like more of an image issue than a security issue," Lochbaum said.

Information involving the height of flood walls and disagreements over the likelihood of a dam failure aren't facts that would aid a terrorist or affect extreme weather, Lochbaum said.

The NRC, however, has no plans to release an unedited version of the document and won't discuss publicly the information removed from the report, said Burnell, the NRC spokesman.

The analysis was initiated a year before the Fukushima meltdown.

"The agency has taken action," Burnell said. "We have worked to ensure that Duke is appropriately accounting for the conditions that exist at Oconee. We continue to feel that the plant is appropriate for continued operation."

The interim safety measures are part of $2 billion in upgrades planned for Oconee, which recently was licensed to operate for another 20 years.