



Oconee Nuclear Neighbors

On March 11, 2011, one of the largest earthquakes in recorded history, combined with a massive tsunami, caused destruction in Japan and triggered a series of events at the Fukushima Daiichi nuclear plant. The plant withstood the earthquake as designed, but the tsunami caused severe damage.

Between Fukushima and the recent earthquake in Virginia that caused the safe shut down of the North Anna nuclear plant, it's understandable, as someone living near a nuclear plant, that these events may have raised questions in your mind.

The U.S. Nuclear Regulatory Commission (NRC), the U.S. nuclear industry's federal regulator, requires nuclear plants to be able to withstand the most severe natural events that may occur in the region where they are located, including earthquakes, hurricanes, tornadoes, fires and floods. This requirement includes an additional safety margin to account for any uncertainties and ensure the plant can remain safe in the event of a severe natural occurrence or other incident.

Oconee Nuclear Station's design is based on many factors, including a detailed evaluation of potential earthquake-induced ground motion at the site. The plant has sensitive

monitoring instruments to detect seismic activity and it is designed to shut down if ground motion exceeds a specified level.

Critical safety structures, systems and components at nuclear power plants, including used fuel pools, are designed to withstand this worst-case earthquake, as well as other severe natural events. Used fuel pools are made of reinforced concrete several feet thick, with stainless steel liners. The water in the pools is typically about 40 feet deep and serves both to cool the used fuel rods and shield workers from radiation. The buildings around the pools meet the same seismic standards as the pools themselves. NRC inspectors at each nuclear plant regularly inspect fuel storage pool operations.

Nuclear plants are also designed to compensate for a loss of power during an emergency or abnormal event. All Duke Energy operated nuclear plants have multiple ways to supply off-site power to the plant. These redundant and diverse backup power supplies include the use of independent support facilities, diesel and steam driven pumps, batteries, etc. The NRC also requires plants to have additional redundant equipment and measures to reduce damage from large fires and explosions.

Duke Energy, along with the U.S. nuclear energy industry, continues to assess the events in Japan and Virginia. Our industry has a culture of continuous improvement and we will make improvements to our plants to further augment safety based on lessons learned from across the nuclear industry. Enhancements we are making at Oconee include strengthening walls around key components, which makes them more resilient for both seismic and tornado events; improving anchorage on electrical equipment; and adding another system to provide redundant shut down capabilities.

I hope this information helps answer some of your questions about the safety and security of Oconee, and the steps we take to ensure Oconee continues to operate safely and reliably.

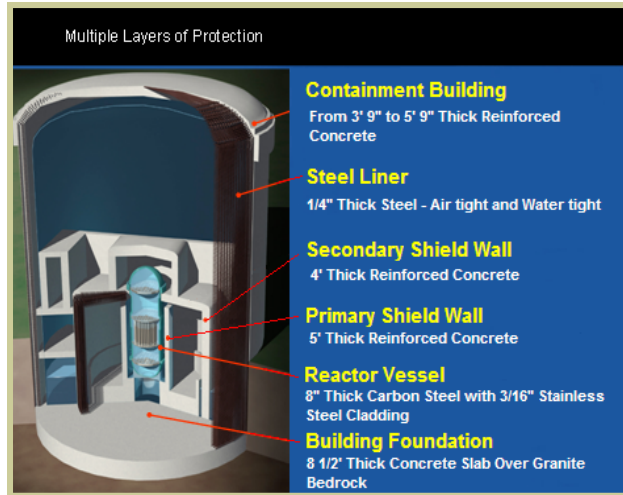
Preston Gillespie
Vice President
Oconee Nuclear Station



Nuclear Power: Safe and Secure

It has been 10 years since the tragic events of Sept. 11, 2001, which changed life as we all know it. This includes the day-to-day security practices at nuclear power plants in the United States. Immediately following the worst terrorist attack on U.S. soil in history, employees of nuclear plants took a strategic look at security in and around their property.

Since that day, the nuclear industry has been in a heightened state of security, even though there has been no credible threat against any nuclear station in the United States. And 10 years later, nuclear power plants continue to be among the most robust and secure facilities in the world. They are designed and constructed to withstand both extreme natural events and physical attacks.



The containment buildings that house the nuclear reactor are many times stronger than typical office buildings and skyscrapers, and are made of several feet of steel-reinforced concrete.

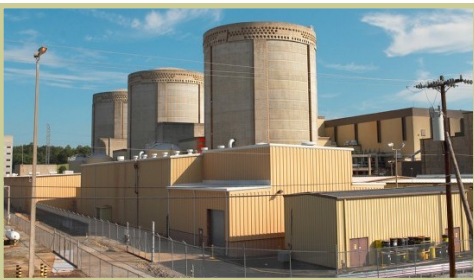
Safety systems and barriers are in place to protect the plant and the public, with numerous security features, both visible and unseen. These include armed, well-trained security forces; physical intrusion barriers consisting of concrete structures and razor wire

fences; and advanced surveillance equipment that continually monitors the area surrounding the plant.

Duke Energy takes nuclear plant security and our obligation to protect the health and safety of the public very seriously. This was true prior to Sept. 11 and remains true today. The nuclear industry has committed more than \$2 billion in investments since Sept. 11 and has made numerous security enhancements by increasing the number of security forces at each site, and upgrading weaponry and detection equipment.

We also work closely with local, state and federal law enforcement agencies and the federal intelligence community to ensure the continued secure operation of Oconee Nuclear Station.

A Big Investment For A Big Return



In 2013, Oconee will enter the second phase of its long history. That's when the site's initial, 40-year operating license begins to expire, and its 20-year license extension begins.

To renew its license, our Oconee team went through a rigorous review process with the NRC. A large part of the review acknowledged our commitment to maintaining and upgrading the plant. In fact, during the past 10 years alone, more than \$2 billion was spent on major upgrades to the three-unit site.

Beginning in 2003, Duke Energy spent

\$425 million replacing the Oconee steam generators and reactor vessel heads in all three units. These replacements increased the station's operating efficiency and reduced maintenance costs.

Over the past 18 months, we have focused on modifications, such as strengthening walls around key plant components, to protect against flying debris from tornadoes.

More recently, the site became the first plant in the nation to begin an analog-to-digital conversion of a major plant safety system, known as the reactor protection/engineered safeguards system. Digital upgrades simplify operations for nuclear operators and help prevent unnecessary shutdowns, resulting in more reliable operations.

Investments in training also continue. A new maintenance training facility integrates technical and maintenance training for core groups. With the

addition of an operations training simulator, Oconee became the third nuclear plant in the country to have more than one training simulator on site. This facility is an exact replica of the plant's unit 1 control room, aiding with the training and licensing of new reactor operators and continuing training for current operators.

Over the next several years, main steam isolation valves will be added to each of Oconee's three units. This will further enhance safety margins for current plant operations by isolating the flow of steam produced in the steam generators.

Since Oconee came on line in 1973, Duke Energy has been committed to continuously improving and upgrading the facility. In the coming years, major investments and upgrades will continue, further ensuring Oconee operates safely and continues to meet the needs of its customers.

Making an Impact

When it comes to serving the community, Oconee employees don't just provide an affordable, reliable and clean electricity source. They also give time, talent and funding to charitable organizations throughout Oconee, Pickens and Anderson counties.

In addition to their financial donations, employees are active volunteers. Many serve on local nonprofit boards and lend their skills to improvement projects at their favorite charities.

In 2010, employees completed more

than 50 community projects and contributed \$46,000 in grant money from the Duke Energy Foundation.

Giving back is a way of life at Oconee. From blood drives to local school visits, Oconee employees prove they're not only dedicated to their jobs, but also to the communities in which they live.



Spring and Fall — Like Clockwork

Just as you refuel your vehicle when it gets low on gas, we must regularly refuel our nuclear reactors. As one of only three plants in the nation to have three units, Oconee has two refueling outages every year — one in the spring and fall. In other words, each unit is "filled-up" every 18 months.

The reactor vessel head is removed and about one-third of the used fuel is replaced with fresh uranium fuel. When the unit is shut down for refueling, workers also complete maintenance tasks or upgrade projects. While neighboring residents don't see the increased work activities inside the facility, you may notice a few subtle

differences.

For instance, there is usually more traffic due to the extra workers on site. You may also notice the Oconee ball field is lit at night and an Oconee County Sheriff's Deputy is stationed on Highway 130, near The World of Energy. These measures ensure our overflow parking lot is well-lit and helps employees safely enter and exit the highway.

Hundreds of additional contract workers arrive on site to help execute the outage work in a safe, efficient manner. Many of the contractors working during an outage come from out of

town; and, during the weeks they're here, they become regulars in the hotels, restaurants and stores near the plant. The money they spend has a ripple effect throughout the entire community.

While refueling a reactor may take a little longer than filling up your car, those few weeks of downtime mean another 18 months of clean, affordable energy. Our employees are dedicated to keeping the lights on, and the work they do during the twice-yearly refueling outages is a key part of that commitment.

Why Nuclear?

As our nation continues to debate climate change and the economy, nuclear energy is one industry that can serve as part of the solution to both topics. Not only is nuclear power a clean, reliable source of energy, but it also creates high-paying, stable jobs.

Nuclear power is one of the cleanest ways to produce electricity. Because the plants generate heat from fission, rather than burning fuel, they produce no greenhouse gases or emissions associated with acid rain or urban smog. The life-cycle emissions from nuclear energy are comparable to other non-emitting sources of electricity like wind, solar and hydropower. Using nuclear power means using fossil fuels less frequently, and over the past 30

years, nuclear power has reduced the use of oil to generate electricity by more than 23 billion barrels.

The Department of Energy projects our nation's electricity demand will increase 24 percent by 2035. That means our nation will need hundreds of new power plants to provide electricity for our homes, businesses and continued economic growth. The energy value derived from nuclear fuel makes it an affordable energy supply. For example, just one pellet of uranium fuel creates as much energy as nearly a ton of coal.

Nuclear plants can help meet rising electricity demand as our economy and population expand, and affords the

U.S. — and Upstate South Carolina — many benefits. As our nation looks to reduce its dependence on foreign oil and other ozone-polluting energy sources, nuclear power will continue to play a pivotal role. At the same time, the industry will continue to shape local economies by providing high-paying jobs and a valuable tax base.

Oconee Nuclear Station provides:

- 1,400 jobs locally
- \$100 million annual payroll
- \$29 million annually in property taxes

An Energizing Visit Awaits You

Whether you're looking to fill an hour or an entire afternoon, Oconee Nuclear Station's energy education center, The World of Energy, has plenty to offer.

Guests are invited to visit the indoor educational exhibits, walk through the butterfly garden, hike our nature trail and enjoy lunch in the picnic shelter, located along the beautiful shores of Lake Keowee. Bring your out-of-town guests and family to see us. And, if your community club is in need of a speaker, we will be glad to come and discuss energy topics.

The World of Energy is free and open to the public Monday thru Friday, 9 a.m.– 5 p.m. and Saturday, noon – 5 p.m.



For more information about The World of Energy:

Phone: 1-800-777-1004

Website: www.duke-energy.com/worldofenergy

Fresh Off the Press: The Nuclear Information Center

Duke Energy recently launched its online Nuclear Information Center (NIC). The NIC is unique, offering an “insider’s look” into the nuclear industry.

Aimed at educators and the general public, posts feature information about emergency drills, nuclear technology, community outreach and many other industry and educational topics. Recent topics include feature stories on Oconee Nuclear Station's digital upgrades, McGuire Nuclear Station's Medical Emergency Response Team and

Catawba Nuclear Station's osprey nest. Readers see the nuclear industry through the eyes of those who work within it, which fosters a greater understanding of nuclear technology and industry issues.

To check out the NIC, go to:

<http://nuclear.duke-energy.com/>



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