

Duke Energy Nuclear Plants: Safety in the Wake of Japan's Earthquake and Tsunami

Duke Energy has received quite a few calls about their nuclear plants since the unfolding of events in Japan. Davis Montgomery, District Manager, says, "We are completely confident in the safety measures that we have in place at our units. It is the tsunami that has caused most of the damage to the nuclear units in Japan, and not the earthquake."

Seismic history and water supply are critical considerations in locating a building site for a plant. Duke Energy's nuclear plants are not located in the same proximity to the ocean as Japan's, so the tsunami effect can be eliminated. Here is operational information that may help with concerns about earthquakes / tremors in our service area.

- Nuclear plants in the United States are built to withstand an earthquake equivalent to or greater than the largest known earthquake in the region they are located. For Duke Energy plants, this is based on the Charleston, S.C., earthquake that occurred about 200 years ago. Steel reinforced concrete containment structures, coupled with multiple, redundant safety and plant shutdown systems, are designed to withstand the effects from earthquakes, hurricanes, tornadoes, and floods.
- All three Duke Energy nuclear stations have seismic instrumentation to record earthquake-induced ground motions at the site. The instruments in the control room are very sensitive and detect extremely low levels of ground motion. Plant operators use the recordings to evaluate the level of earthquake motion at the site and determine if it must shut down. Our procedures require us to shutdown at when low levels of ground motion are detected.
- Duke's nuclear plants can shut down safely even if outside power sources are disrupted. An independent backup power supply is available to cool the fuel in an emergency situation.
- Step-by-step procedures are used by operators to respond to any type of natural disaster. While Duke Energy operators routinely train on these procedures, they have never had to implement these procedures for earthquake events.
- If a plant shuts down due to an earthquake, a detailed physical inspection is done to evaluate the impact of an earthquake at the site and the condition of the plant structures, systems and equipment. In the event of an earthquake, Duke Energy staff would analyze the recordings and the inspection results before restarting the reactor.
- Operators then perform extensive inspections prior to restarting the plant. If an earthquake exceeds the maximum operating basis and has to shutdown, the plant cannot restart without U.S. Nuclear Regulatory Commission approval, following extensive inspections to determine if it is safe to resume power production.

Here are some resources for additional information:

[General Information](#) – links to several topics and plant-specific information.

A link to Duke Energy's website with information on the subject:

<http://www.duke-energy.com/events-in-japan/default.asp>