U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Frequently Asked Questions About the Japan Nuclear Crisis:

"Can It Happen Here?"

1. **Can the Japanese nuclear crisis happen here in the United States?**

   The events that have occurred in Japan are the result of a combination of highly unlikely natural disasters. These include the fifth largest earthquake in recorded history and the resulting devastating tsunami. It is highly unlikely that a similar event could occur in the United States.

2. **I live near a nuclear power plant similar to the ones having trouble in Japan. How can we now be confident that this plant won't experience a similar problem?**

   All U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants that are located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster. The NRC requires that safety-significant structures, systems, and components be designed to take into account the most severe natural phenomena historically reported for the site and surrounding area – even very rare and extreme earthquakes and tsunami. The NRC is confident that the robust design of these plants makes it highly unlikely that a similar event could occur in the United States.

3. **How many plants are located in seismic areas?**

   Although we often think of the US as having "active" and "non-active" earthquake zones, earthquakes can actually happen almost anywhere. Seismologists typically separate the United States into low-, moderate-, and high-seismicity zones. The NRC requires that every plant be designed for site-specific ground motions that are appropriate for their location. In addition, the NRC has specified a minimum ground shaking level to which the plants must be designed. See our Fact Sheet on seismic issues for more information.

4. **Has this crisis changed your opinion about the safety of U.S. nuclear power plants?**

No. The NRC remains confident that the design of U.S. nuclear power plants ensures the continued protection of public health and safety and the environment.

5. With all this happening, how can the NRC continue to approve new nuclear power plants?

It is premature to speculate what, if any, effect the events in Japan will have on the licensing of new nuclear power plants.

6. What is the NRC doing in response to the situation in Japan?

The NRC has taken a number of actions:

a. Since the beginning of the event, the NRC has continuously manned its Operations Center in Rockville, MD in order to gather and examine all available information as part of the effort to analyze the event and understand its implications both for Japan and the United States.
b. A team of 11 officials from the NRC with expertise in boiling water nuclear reactors have deployed to Japan as part of a U.S. International Agency for International Development (USAID) team.
c. The NRC has spoken with its counterpart agency in Japan, offering the assistance of U.S. technical experts.
d. The NRC is coordinating its actions with other Federal agencies as part of the U.S. government response.

7. What other U.S. agencies are involved, and what are they doing?

The entire federal family is responding to this event. The NRC is closely coordinating its efforts with the White House, DOE, DOD, USAID, and others. The U.S. government is providing whatever support requested by the Japanese government.

8. What else can go wrong?

The NRC is continuously monitoring the developments at the nuclear power plants in Japan. Circumstances are constantly evolving and it would be inappropriate to speculate on how this situation might develop over the coming days.

9. What is the worst-case scenario?

In a nuclear emergency, the most important action is to ensure the nuclear fuel in the reactor core and the spent fuel pool is covered with water to provide cooling to remove any heat from the fuel rods. Without adequate cooling, the fuel rods will melt. Should the final containment structure fail, radiation from these melting fuel rods would be released to the atmosphere and additional protective measures may be necessary depending on factors such as prevailing wind patterns.

10. The United States has troops in Japan and has sent ships to help the relief effort – are they in danger from the radiation?

The Department of Defense is the appropriate agency to provide information regarding its personnel.

11. I saw a news report that said my local nuclear power plant ranked high on your list of plants most vulnerable to earthquakes. Is that true?

The NRC does not rank plants according to seismic risk or vulnerability. This "ranking" was developed by a reporter using partial information and we believe an even more partial understanding of how we evaluate plants for seismic risk. Each plant is evaluated individually according to the geology of its site, not by a "one-size-fits-all" model – therefore such rankings or comparisons are highly misleading.

We are also frequently asked whether Plant A can withstand a quake of magnitude X. This sounds like a yes-or-no question, but again, it's not that simple. Nuclear plants are designed to withstand a certain level of "ground shaking," to use a technical term. But the way the ground shakes in an earthquake is a factor of the magnitude and the distance from the epicenter, among other things. So we can't give a simple answer to such a simple question.

12. Are nuclear power plants along the coasts vulnerable to tsunami?

Large tsunami such as the one that hit Japan typically are caused by "subduction" faults, where one tectonic plate slides under another. There is only one such fault near the U.S. coastline – off the northern part of the West Coast, from northern California up past Oregon and Washington. There are no coastal nuclear power plants in this region. The closest plant, in central California, is the Diablo Canyon nuclear power plant. It is well protected against tsunami.

Along the Gulf Coast and the Atlantic Coast, storm surge from hurricanes generally poses a greater threat to nuclear power plants than tsunami. The plants in these regions are well protected against hurricane storm surge.

13. Other countries have ordered their nuclear power plants to shut down in the wake of the Japan crisis until they can be determined to be safe. Why isn't the NRC taking similar action?

The NRC is confident that U.S. nuclear plants are safe and that there is no need to shut them down. However, events such as the Japan crisis often have lessons to offer that can help us improve our oversight and regulation of the country's nuclear power plants. As President Obama said on March 17:

> *"Our nuclear power plants have undergone exhaustive study, and have been declared safe for any number of extreme contingencies. But when we see a*

crisis like the one in Japan, we have a responsibility to learn from this event, and to draw from those lessons to ensure the safety and security of our people. That's why I've asked the Nuclear Regulatory Commission to do a comprehensive review of the safety of our domestic nuclear plants in light of the natural disaster that unfolded in Japan."

The NRC intends to conduct such a review as soon as possible.