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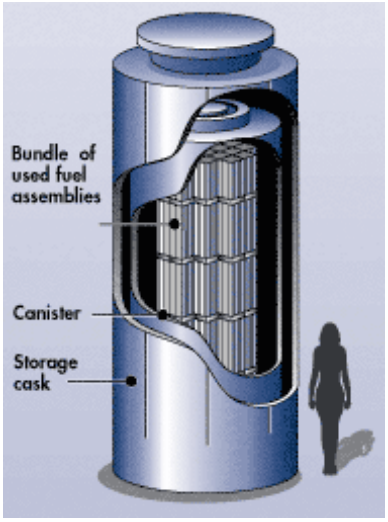
Hello Brandon:

Thanks for your letter to Chairman Svinicki regarding your thoughts on nuclear power and the proposed new nuclear power plant next to the existing Fermi reactor near Monroe.

Used (or “spent”) nuclear fuel at U.S. nuclear power plants is currently stored safely and securely in one of two ways. Operating reactors such as the existing Fermi reactor (as well as most permanently shut down reactors) store spent fuel in robust pools made of reinforced concrete several feet thick, with steel liners. The water is typically about 40 feet deep, and serves both to shield the radiation and cool the fuel. The proposed new reactor at the Fermi site would include a pool with enough capacity for decades’ worth of spent fuel. NRC research following the 2011 Fukushima accident considered the effects of a very severe earthquake on a spent fuel pool. That research concluded the pools will continue to protect the public after severe events, and that post-Fukushima safety enhancements can safely stop scenarios that might damage fuel in the pools.



Once the fuel has cooled off (normally after about five years), plant owners can move this “colder” spent fuel into "dry cask" storage. As shown in the diagram, the casks are typically steel cylinders that are filed with inert gas (such as helium or nitrogen) and either welded or bolted closed. The steel cylinder provides a leak-tight confinement of the spent fuel. Each cylinder is surrounded by additional steel, concrete, or other material to provide radiation shielding to workers and members of the public.

Casks have safely and securely stored spent fuel for several decades, and can continue doing so for some time. The casks are very robust – casks at a plant in Virginia safely withstood a strong earthquake in 2011. Both the existing Fermi site and the proposed new reactor site have enough land for dry cask facilities large enough to store spent fuel from the reactors’ entire operating life.

The long-term approach to storing U.S. spent fuel remains under discussion. The NRC is currently examining how the agency might re-start consideration of the application to license and build a permanent, national spent fuel repository at Yucca Mountain in Nevada. Two private companies have applied for licenses to build very large dry cask facilities in the U.S. Southwest. If those licenses were approved, they would provide consolidated spent fuel storage for the nation until a permanent facility is available.

The NRC reviewed DTE's new reactor application for the Fermi site from September 2008 through February 2015. This thorough review covered both the safety and environmental aspects of building and operating the proposed reactor. The NRC approved the proposed design, the Economic Simplified Boiling-Water Reactor, in 2014. The design includes several safety features that would operate without the need for electricity, meaning the reactor would be able to safely withstand the sort of events that occurred before the Fukushima accident. When the NRC decided to issue the Fermi new reactor license, the agency imposed conditions on the proposed reactor to account for the lessons learned from the Fukushima accident. In issuing the license for the Fermi new reactor, the NRC has concluded the public will remain safe if the reactor is built and operated.

Even before Fukushima, U.S. nuclear power plants operated safely for decades, withstanding severe events such as tornadoes, floods, and hurricanes including Andrew and Katrina with no impact to the public. In the years following the accident in Japan, the NRC imposed additional requirements on operating U.S. reactors to enhance their ability to remain safe.

NRC research over the past decade has examined the potential consequences of a U.S. reactor accident. These detailed analyses of accident scenarios show that the post-Fukushima enhancements can stop an accident before it can affect the public. Even if an accident cannot be stopped, the research shows the effects are much less than earlier thought. The potential radioactive material reaching the environment would only be enough to slightly increase cancer risk in the affected population.

I've included additional information on the NRC's overall operations, the agency's response to the Fukushima accident, and spent fuel storage/transportation. Please feel free to e-mail me at Scott.Burnell@nrc.gov if you have any other questions.

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