May 28, 2013

Iris Potter Michigan Safe Energy Future, Kalamazoo Chapter <u>b.irispotter@gmail.com</u>

Dear Ms Potter,

I very much appreciated your time and the engaged conversation during the meeting on March 25 at the Beach Haven Event Center in South Haven Michigan. As promised, I am responding to your letter dated March 25, 2013, which expressed concerns regarding the safe operation of Palisades. A record of these and other questions from local citizens, as well as my responses, is documented in the Nuclear Regulatory Commission's (NRC) Agencywide Documents Access and Management System No. ML13142A424. The discussion with you and the other participants was very helpful to me as I continue to consider public concerns about nuclear safety.

You raised issues regarding Palisades' reactor vessel embrittlement. You also discussed comments I made at the recent Regulatory Information Conference. In the enclosure, I have provided specific responses to the issues you raised.

The NRC maintains safety as our top priority to ensure the protection of our citizens and the environment. I and all my colleagues at the agency are firmly dedicated to ensuring the safe operation of nuclear power plants and to protecting public health and safety.

Thank you for sharing your views and insights. If you have any additional questions, don't hesitate to contact me at 301-415-8430.

Sincerely,

/**RA**/

William D. Magwood, IV

Enclosure: Responses to Concerns

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The correspondence addresses policy issues previously resolved by the Commission, transmits factual information, or restates Commission policy. **Distribution:** 

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SECY

#### ADAMS Package Number: ML13142A424 Ticket Number: G20130287

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## OFFICIAL RECORD COPY

## Response to Concerns Raised in Letter Sent to the NRC by Ms. Iris Potter

# 1. Concerns with public health and safety if there was an accident, such as what occurred in Fukushima.

As you mentioned in your letter, I witnessed firsthand the extensive damaged reactors in Fukushima-Daiichi. The NRC and the Commission have made it a priority to understand the events in Japan, and relay important information to U.S. nuclear power plants. In order to achieve this the NRC established a task force of senior agency experts to determine lessons learned from the accident and to initiate a review of NRC regulations to determine if additional measures needed to be taken immediately to ensure the safety of U.S. plants. The task force report was issued on July 12, 2012, (http://pbadupws.nrc.gov/docs/ML1118/ML111861807.pdf). The Commission concluded there was no imminent threat from continued operation of commercial nuclear plants on public health and safety. However, several Orders have been issued to commercial nuclear plants to take action to increase the capability of nuclear plants to mitigate beyond-design-basis events based on the insights from Japan. I assure you that if we deemed Palisades or any other plant to be unsafe, the NRC would take action to shut down the plant.

The task force also made several recommendations for Commission consideration. The staff subsequently evaluated, prioritized and expanded upon the task force recommendations. The Commission has approved a course of action to address the task force items. The Commission continues to be briefed on the actions. Detailed Information can be found in the NRC's website under Implementing Lessons Learned from Fukushima

(http://www.nrc.gov/reactors/operating/ops-experience/japan-info.html).

## 2. Concerns with reactor vessel being embrittled and a potential for a meltdown.

The NRC requires all nuclear plants to implement a surveillance program to monitor the effect of embrittlement on the steels from which the reactor pressure vessel is constructed. The NRC reviews this data to ensure that each plant meets the applicable Regulatory Requirements.



The Plot above, which was used as part of the end-of-cycle public meeting held on April 2, 2013 (ADAMS ML13093A191), shows the variation of the embrittlement reference temperature (RT<sub>PTS</sub>) with years of radiation exposure. The NRC uses this reference temperature to quantitatively assess brittleness. It can roughly be described as the temperature below which the steel has a greater tendency towards brittle behavior (more likely to break than bend) and above which the steel has a greater tendency towards ductile behavior (more likely to bend than break). Higher reference temperatures correspond to higher levels of embrittlement. Data from the surveillance capsules (squares and circles) are shown for the Palisades surveillance weld, as well as for the weld in the Palisades vessel (labeled "limiting weld" on the plot), which have similar chemical composition. The plot shows that these measurements agree well with the NRC's predictive formula and trend for Palisades from Regulatory Guide 1.99 (dashed curve), and are all over-estimated by the Regulatory Guide 1.99 bounding prediction (solid curve). Beyond the capsules irradiated in Palisades, information is also available from surveillance programs conducted in the H.B. Robinson and Indian Point reactor pressure vessels; these data appear as lightly filled squares. In summary, the surveillance data for the Palisades reactor vessel shows that Palisades is compliant with the embrittlement requirements contained in 10 CFR 50.61. By being compliant with NRC rule, the probability of developing a crack through the vessel wall remains extremely low.

In your letter you also stated that Entergy has not followed regulatory requirements. During our review of Palisades we have found no violation of NRC requirements concerning pressurized thermal shock (PTS) or embrittlement at Palisades. Had Palisades ever violated PTS requirements the NRC would have taken action.