

## NRC Conference Call- January 13, 2015- Palisades Nuclear Power Plant

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I have been retained as an expert by Beyond Nuclear to evaluate the root cause of the significant radiation exposures received by the Palisades nuclear power plant work force, that performed maintenance modifications on its control rod drive modules during a recent outage. My expert witness credentials are on record with both the NRC and Entergy. Briefly, I earned both my Bachelor Degree and Master Degree in Nuclear Engineering, earned a Reactor Operator's license, taught reactor physics, have been a nuclear engineer for more than 43 years, including my role as a Sr. VP in the nuclear industry.

My analysis of the findings being discussed today has led me to conclude that these findings are serious enough that they should be increased to 'yellow' findings with additional regulatory oversight for at least two years. These practices should not be minimally acknowledged as 'white' findings. Sound engineering practices and enforcement are the cornerstones of safe nuclear power operations. My analysis showed the following three reasons for increasing the classification penalty to 'yellow':

1. The Nuclear Regulatory Commission (NRC) identified these problems following an inspection of the plant. By regulatory statute, these problems should have been identified and self-reported by Entergy. They were not self-reported.
2. The problems identified by the NRC indicate poor planning and poor implementation by Entergy. At Palisades, Entergy has an experienced management team, an experienced health physics team, and an experienced work force. The control rod drive module repairs that Entergy attempted at Palisades have been failing and leaking at the reactor since the early 1970s. I find it astounding that a repair project previously unsuccessful for 40 years, and supervised by an experienced group of Entergy employees still created such a serious radiation risk to the employees actually implementing this repair.

Additionally, such radiation exposure to workers who were allegedly well trained in radiation monitoring also indicates a gross disrespect for the effect of radiation on the implementation workforce. The evidence I reviewed suggests that this project was rushed simply in order to get the Palisades reactor back online quickly. “Damn the torpedoes, full speed ahead” Adm. Farragut might say was the motto for this repair project.

I believe that Entergy managers receive performance bonuses based upon prompt completion of outages and also for having no ‘white findings’. Entergy’s bonus plan then provides a motive to rush through the project and to appeal the NRC’s finding.

Given an experienced well-trained health physics organization, it amazes me how poorly radiation exposures to workers were predicted and monitored. Given an experienced well-trained workforce, it also is significant that no worker came forward to try to rectify the problems made evident in the NRC inspection. All work force members had personal dosimeters and therefore should have been aware of the exposure risks, yet no one spoke up. Given Entergy management’s claim that they place the highest priority on safety, the emphasis on returning the Palisades reactor to operation as quickly as possible is disturbing. It is also deeply concerning that two NRC inspectors were on site during this project and apparently ignored this push for economic gain over safe worker exposures.

It is well documented that Entergy is facing significant financial problems in its merchant fleet as they have said publicly regarding their closure of the Vermont Yankee nuclear plant. Apparently the workers, health physics team, and management reached a tacit agreement to perform this work as quickly as possible without concern for radiation exposure to the implementation work force. This is yet another example of failed safety ethics at Palisades and a chilling effect imposed upon workers.

Despite the serious concerns identified by the NRC inspection team and discussed here today, neither Entergy Palisades nor the NRC have done the requisite root

cause analysis to determine why this project is so flawed. Without conducting the true root cause analysis that the NRC should be demanding, the Palisades' work force will continue to be at significant risk for serious radiation exposures.

3. The Nuclear Regulatory Commission is not blameless. NRC inspectors should have stepped forward to protect the lives of this vulnerable work force. The evidence I have reviewed shows that the NRC is playing a dangerous double-faced game in assessing radiation exposure to industry workers. On one hand, the NRC allows a reactor like Palisades to retain its spent fuel in its fuel pool on the flawed assumption that radiation to workers can only be minimized by keeping the fuel in place. And then in direct opposition to worker protection, the NRC allows Entergy Palisades to expose its work force to significant radiation in order to meet an arbitrary timeline to produce power as quickly as possible. This truly double standard has harmed innocent people who trusted the NRC and Entergy to protect them from such over-exposure.

For these three reasons, I believe it is imperative that the NRC increase the finding against Palisades to a 'yellow' level finding from the lesser 'white' level it initially recommended. Exposing workers to such high levels of radiation that occurred during this mismanaged control rod drive repair should not be tolerated, and must be identified for the serious issue it is. Finally, additional NRC management oversight at Palisades should be required for *at least* two years as a result of this botched project.