

Remarks by Donald Helton (staff member in the Office of Nuclear Regulatory Research) at the October 2nd, 2013 ACRS Full Committee Meeting on Expedited Fuel Movement:

- The Regulatory Analysis represents a significant amount of work accomplished in a relatively short timeframe, and the NRR staff should be commended for its breadth and complexity.
 - These remarks are intended to provide additional emphasis on particular aspects of the Regulatory Analysis that may not resonate with the Committee and the Commission, as currently characterized in the draft Commission paper.
 - They represent my views. They do not represent an Office of Nuclear Regulatory Research view.
1. The Regulatory Analysis shows that expedited movement of fuel older than 5 years from spent fuel pools to dry cask storage does not provide a substantial safety enhancement. It is important for the reader to understand that the significance of the safety enhancement has been judged based solely on the risk to individuals living in close proximity to a nuclear power plant. This means that risk to an individual is assumed to be a reasonable surrogate for cumulative human health risk, even though the events in question are known to have widespread effects in the unlikely event they occur.
 2. The Regulatory Analysis shows that the studied action is not cost-beneficial when radiological release frequency estimates are biased in favor of a cost/beneficial finding, while total offsite impacts (human health and otherwise) are not comprehensively considered. Specifically, a dated dose conversion factor and a 50-mile distance truncation are employed. The Commission paper acknowledges this, and emphasizes the importance of the sensitivity studies, without informing the reader that:
 - a. In many instances this is the difference between a cost/beneficial and non-cost/beneficial determination, and
 - b. It makes an order-of-magnitude difference in some results.
 3. The staff's work to date does not provide a clear perspective on the cost/beneficial result when both the conservatisms and non-conservatisms are removed. Based on my own investigation (which involved constructing a cumulative distribution function from the low, base, and high cases, using the beyond-50-mile/\$4000 per person-rem sensitivities), I expect that the action would not be cost/beneficial for a majority of the fleet but could be cost/beneficial for many plants. Additional work to refine specific simplifying assumptions in the Regulatory Analysis (such as the effect of mitigation in reducing the release frequency), or to perform a simplified plant-by-plant screening based on available information, might alter this conclusion in a more non-cost/beneficial direction.
 4. The Regulatory Analysis does not consider related alternatives (e.g., expedited movement of fuel older than ten years, refinement of spent fuel pool heat load management requirements) that might be more cost-beneficial.
 5. Since, on the whole, there is no compelling evidence upon which to take generic regulatory action, I agree with the Commission paper's recommendation to close the Japan Lessons Learned Tier 3 item. However, in light of the points raised above, I believe that the staff should advocate for continued staff activity under another appropriate regulatory program to assess whether action would be cost-beneficial for specific plants when simplifying assumptions are refined, or when other contributing factors (such as inadvertent criticality) are considered. This would be in addition to resolving the issue for Western plants (as the Commission paper already envisions). This information would then be provided to the Commission.

6. I believe the staff should also seek Commission direction on the use of quantitative health objectives for an individual as a suitable measure of substantial safety enhancement for classes of accidents known to be low-likelihood, high consequence events, particularly when this determination causes the staff to dismiss cost-beneficial or potentially cost-beneficial alternatives.
7. Since future work is not expected to change the NRC's understanding of the fundamental processes affecting potential environmental consequences of spent fuel pool zirconium fires (beyond the significant state-of-knowledge captured by this Regulatory Analysis, the supporting Spent Fuel Pool Study, and the numerous past investigations of this issue), I believe that activities related to the development of the Environmental Impact Statement and proposed rule for Waste Confidence should proceed unencumbered by the follow-on activities recommended earlier in these remarks.
8. I believe that the characterization of the Regulatory Analysis in the Commission paper needs to be strengthened to capture the importance of these items, such that the Commission paper provides the Commission with a balanced perspective on which to provide direction.

Thank you for your time.