

August 11, 2016

MEMORANDUM TO: Robert Dennig, Chief
Balance of Plant Branch
Division of Safety Systems
Office of Nuclear Regulatory Research

FROM: Christopher J. Fong, Lead **/RA/**
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SUBJECT: PUBLIC RELEASE OF CONTRACTOR REPORT, "ANALYSIS OF
MISSILE IMPACT PROBABILITY FOR GENERIC TORNADO
HAZARD ASSESSMENTS"

The attached report, "Analysis of Missile Impact Probability for Generic Tornado Hazard Assessments," dated July, 29 2016, was prepared by the Southwest Research Institute® under contract to the U.S. Nuclear Regulatory Commission. The main objective of the report was to analyze the dependencies of the missile impact parameter that was proposed by the industry to facilitate estimating the frequency of hit to a target by tornado-generated missiles, on variables such as target geometry, target placement, and the initial distribution of missiles.

The report provides potentially useful insights, but should be used considering the following cautions:

- The NRC staff has not performed a detailed review of the report and does not endorse the information, findings, or conclusions contained in the attached contractor report at this time;
- Discussions among NRC staff members, industry representatives, and other interested stakeholders are presently ongoing. Therefore, no regulatory decision regarding the industry proposal has been made to date;
- The input data for the study documented in this report was taken from a 1978 report published by the Electric Power Research Institute, "Tornado Missile Risk Analysis" (NP-768). The inferences in the attached contractor report have not been validated by specific computer simulations of the various parameters;

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Still, the attached report provides a valuable evaluation of the approach to scale the missile impact parameter for estimating the hit frequencies in tornado risk assessments of different sites. It also points out specific benefits that future analyses may provide and offers insights into how these analyses might be performed. For these reasons, I recommend that the attached contractor report be available to all interested stakeholders.

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