The NRC "position" on probability is expressed in several places. For example;

NRC letter from Reamer to Zielgler, dated November 5, 2004, Titled " PRE-LICENSING EVALUATION OF IGNEOUS ACTIVITY KEY TECHNICAL ISSUE AGREEMENT 1.02" (ADAMS ML042750096).

Main Letter

"Thus, DOE has not yet provided a transparent, traceable, and technically appropriate basis to support continued use of the PVHA conceptual model in light of credible interpretations of new aeromagnetic and ground magnetic data. NRC encourages DOE to complete its testing and analysis program identified in Enclosure 2 of its November 5, 2003, letter. The completion of all of DOE's planned activities in this area may contribute to establishing a reasonable basis to constrain existing uncertainties in the number and age of potential buried igneous events in the Yucca Mountain region."

Attachment 2

"Part of the justification DOE cites for disregarding a fivefold increase in probability is that this level of uncertainty would not increase the mean DOE probability of igneous disruption above 10^{-7} per year (Ziegler, 2003). In citing this value, DOE appears to conclude that the probability of volcanism is bounded by a probability of 10^{-7} per year (Ziegler, 2003). However, DOE has not provided a technical basis to support the conclusion that a 10^{-7} per year probability of volcanic disruption bounds or constrains probability values for potential licensing evaluations (e.g., Schlueter, 2000). Use of this value by DOE provides the NRC staff with one basis with which to evaluate the significance of alternative probability models and the associated uncertainties. "

NRC Letter from Reyes to Ryan, dated February 7, 2006, titled "REVIEW OF THE NRC PROGRAM ON THE RISK FROM IGNEOUS ACTIVITY AT THE PROPOSED YUCCA MOUNTAIN REPOSITORY" (ADAMS ML060040418)

"Available probability estimates for the likelihood of future igneous events at the potential repository site span several orders of magnitude above and below the 10^{-8}/yr level of regulatory significance. Most of this variation arises from the use of alternative conceptual models to represent the timing and location of past igneous events. Many of these models use mutually exclusive assumptions, which staff will need to review. Multiple approaches are available to evaluate alternative conceptual probability models, each of which provide different technical insights and information on risk significance. The staff also recognizes the need to evaluate different types of uncertainties between short- and long-term probability estimates.

Event probabilities from alternative conceptual models can be sampled as a range of values. Utilizing a range of values from these models propagates a measure of model uncertainty through the performance calculation, and provides insight on the effects of model variability on the average calculated risk. The basis for selecting or weighting a range can be subjective. Additionally, a sampled-range approach can confuse important distinctions between data uncertainty [i.e., 10 CFR Part 63.114(b)] and model uncertainty [i.e., 10 CFR Part 63.114(c, g)],which staff will need to assess. As an alternative, the significance of alternative conceptual probability models can be evaluated as single values in performance calculations. By using a representative probability value as a baseline in calculations, staff can evaluate the risk significance of any available probability value by simple comparison to the baseline value. Staff

continues to evaluate new data and conceptual models for igneous event probabilities developed by DOE and other scientists, as well as DOE's ongoing expert elicitation on Probabilistic Volcanic Hazard Assessment and associated field and laboratory investigations. The potential risk significance of this new information can be determined and communicated by using a combination of review methods."

NRC Letter from Schlueter to Ziegler, 2002, Titled "REQUEST FOR ADDITIONAL INFORMATION - IGNEOUS ACTIVITY AGREEMENT 1.02" (ADAMS ML 0234305061)

"Interpretations of the new aeromagnetic data showed that, in addition to the seven buried volcanoes identified in 1995 (CRWMS M&O, 1996), thirteen additional volcanoes may be buried beneath the alluvium in this region. To evaluate the possible effects these newly interpreted volcanoes could have on DOE probability models, the DOE Letter Report considered two analyses. DOE considers all newly identified magnetic anomalies as representing buried basaltic volcanoes, and estimates the ages of these volcanoes based on presumed burial depths. For the first analysis, DOE assigns a weighting function to the likelihood that the identified magnetic anomalies represent buried basalt. The revised distribution for the number and age of volcanic events was then propagated through the numerical models produced in CRWMS M&O (1996). For the second analysis, all of the newly identified anomalies were assumed to represent buried basalt and the nonweighted distributions were propagated through the CRWMS M&O (1996) numerical models. These analyses conclude that the presence of newly interpreted volcanoes could increase DOE probabilities by up to a factor of approximately 1.4. In contrast, analyses presented in Hill and Stamatakos (2002) indicate probabilities could increase up to a factor of approximately 10 in response to the new interpretations of available magnetic data."

NRC, 1999, Issue Resolution Status Report, Key Technical Issue: Igneous Activity, Rev 2. (ADAMS ML 032380035)

"Based on available information, staff conclude that a range in annual probabilities of from 10^{-7} to 10^{-8} bounds the range of credible models on the annual probability of future volcanic activity intersecting the proposed repository site. Although a probability distribution can be constructed to evaluate uncertainty due to parameter variations, this uncertainty is small relative to variations in conceptual models used (i.e., Geomatrix, 1996) or to uncertainties associated with model accuracies. As there is no basis for distinguishing between values in this range, the staff will use an annual probability value of 10^{-7} in performance assessment. "