U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

PRESENTATION TO
THE NUCLEAR WASTE TECHNICAL REVIEW BOARD

SUBJECT: INTRODUCTION - CONSEQUENCES AND PROBABILITY

PRESENTER: BRUCE M. CROWE

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CONTROLLING PARAMETERS: MAGMATIC DISRUPTION

LITHIC FRAGMENTS 0.03% BY VOLUME
SIZES: mm TO TENS OF cms

LAVA

FRAGMENTATION DEPTH
CHILLED BORDERS LIMITED INTRUSION EFFECTS

DIKE WIDTHS .5 TO 2 m
DIKE LENGTHS 1 TO 4 km
CROSS SECTIONAL AREA <.01 km²
Volcanism Studies
Yucca Mountain Project

Future Directions: Volcanism Studies

1. Resolve Chronology Studies
   -- Trenching

2. Impact of Polycyclic Model

3. Refine Event Volumes for Probability Calculations
   Possible Elimination of Volcanism as an Issue for Yucca Mountain

1. Probability Distribution: E1 and E2
   -- Model sensitivity
   -- Expert opinion

2. Consequence Analysis
   -- Controls on the Incorporation of Waste
     0.03% Lithic Fragments
     Depth of Incorporation of Lithic Fragments
   -- Expert opinion
     Probability of exceeding regulatory releases
     $10^{-2}$ to $10^{-4}$ estimate
     $10^{-1}$: $P_{D_{aq}} << 10^{-8}$