Summary:

Objective of Work Being Reported: Paper will discuss new theoretical work for modeling the trajectories of lofted burning embers resulting from small-scale ground fires.

Relationship of the Work to the Overall Interests of DOE Safety Analysis: This paper provides a theoretical basis for predicting the trajectory limits of burning embers lofted by small-scale wildfire-generated buoyant plumes. This theory allows for calculation of minimum safe standoff distances for foliage and other combustible materials relative to DOE hazardous materials sites.

Results of Work: This paper discusses modeling burning embers as spheres, cylinders, and disks; calculation of ember burnout rates and mass extinction times; and predicted propagation distances of embers lofted by buoyant plumes of heated air resulting from small wildfires (less than or equal to 40 MW). The influence of advecting winds on burnout rates and propagation distances is examined.

Reviewed for Classification: UNCLASSIFIED